Hydronics Heating Installed In 4 Hours . . . Pg. 16

AIR CONDITIONING HEATING & REFRIGERATION NEWS

The Newspaper of the Industry

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✓ INSIDE THIS ISSUE

FILTRATION SYSTEM cuts $100,000 off cost of air conditioning newspaper plant..... 6
AIR-COOLED CONDENSING 11
INTERNAL OVERLOAD PROTECTORS (2) 13
HOW TO CHECK CAP TUBES (2) 18
LOGISTICS & ECONOMICS OF AIR CONDITIONING (2)—Explains advantages and disadvantages of each of the three types of systems that were considered for installation in Firemen's Insurance Bldg. 24
TRANSPORT REFRIGERATION 9
WORLD TRADE 10
TECH CENTER 13
EDITORIAL 14
OFF THE CHEST 14
CURRENT LITERATURE....21
WHAT'S NEW 22

Sept. Week Best In '61 In Dallas, Ft. Worth

DALLAS — During the week ending Sept. 22, when some would consider the cooling season about over, Dallas and Fort Worth area contractors installed 132 residential air conditioning jobs, more than in any other single week this year. Total tonnage was 410.5.

They followed this up with 78 residential installations during the week ending Sept. 29, a figure that compared favorably with many summer weeks, according to figures supplied the

(Continued on Page 29, Col. 4)

Designer Stresses Importance Of Proper Air Supply In Shelter

By George M. Hanning

DETROIT—Although plans for less costly type fall-out shelters do not provide for them, mechanical means of ventilation and positive filtration of introduced air are highly recommended if the shelter is to serve its designed purpose.

That is the opinion of Gerald Simon de Montfort, of Montfort Associates, who has been designing and building fall-out shelters for the past four years and has been doing research in the subject for the past six years. His work is largely in residential shelters, though he also handles commercial types.

For other stories on ventilation equipment for fall-out shelters, see pages 26 and 27.

Montfort recommends the underground type shelter over the basement type for safety reasons. The underground type shelter is not only provided with 24-in. or more shielding as compared with 8-in. shielding in basements, but it is not subject to such potential non-nuclear hazards as broken gas lines and backed up sewers.

In designing a fall-out shelter, from 3.5 to 10.5 cfm of air per person should be provided. Thus a blower of 40 cfm or larger should be installed.

The blower should be designed for manual as well as electrical operation on the reasonable assumption that electric power may not be available—even if an

(Continued on Page 28, Col. 2)

Lack of Air Nearly Causes Shelter Tragedy

HAMPTON BEACH, N. H. —The importance of proper air supply in fall-out shelters was underscored by a near tragedy here.

William Kennedy and Robert Moore entered a $2,000, above-ground shelter for a five-day test on psychological and sanitary conditions in the structure Kennedy had built. The project almost proved fatal for them when the air in the concrete shelter gave out the second day.

Kennedy, using a shelter-to-home inter-com system, told his wife he was having trouble breathing. She rushed to the shelter and told her husband to turn the handle of the reinforced steel door. He finally got the door open, then collapsed on the ground. The men were taken to a hospital, given oxygen, and then released.

1 Out of 8 Houses In U. S. Has Some Air Conditioning

WASHINGTON, D. C.— About one out of eight occupied houses in the United States had some form of refrigerated air conditioning in April, 1960, a preliminary tabulation of the 1960 Census of Housing.

This estimate, based on a sample of the 1960 census data, was reported recently by the Bureau of the Census, U. S. Dept. of Commerce.

From its sample, the bureau estimates that there were almost 6,750,000 housing units with either room units or a central system. Of these more than 4 million occupied units had one room air conditioner. More than 1.5 million had two or more. Nearly 1.1 million had central systems.

Bureau figures also indicate that 41% of all housing units were heated by warm air, as compared with 27% in 1950. Of the 41%, 30% employed ducted heat and 11% were equipped with floor, wall, or pipless furnaces.

Steam or hot water was used in 23% of the 1960 housing units, about the same as in 1950.

Other means of heating with a flue dropped to 23% from 36% in 1950. Portable heaters and radiant gas heaters without flues warmed 10% of the housing units. Built-in electric heaters were in 1%. Another 1% were not heated.

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

You, Too, Can Sell Home Goods to an Exploding Market

Young men interested in selling careers should take a gander at the opportunities offered by the ever-widening home automation market.

Nowadays, our citizens seem eager to spend at least two billion dollars in any given year for electrical and gas household conveniences, such as residential air conditioning.

Adding more promise to the already fabulous lushness of this panting market, new products continually are being developed to ease the drudgery involved in home-making.

Truly, the future for home automation merchandising and servicing firms appears to be exciting.

Selling these much-in-demand items offers many advantages to those who can qualify for the task and assume the responsibility. The work involved certainly isn't monotonous.

Furthermore, it's clean, mentally stimulating, and lucrative —if you know your whys and wherefores.

Service Comes First!

First off, the responsibility of selling an aid-to-better-living implies the obligation to render a service. The successful salesman realizes that his job is to serve both the customer and his employer. But the customer comes first!

Slowly, but surely, the smart-

(Continued on Page 12, Col. 1)

New Lines for 1962

Typhoon Introduces 24 New Products

ST. PETERSBURG, Fla. — A "pot of gold" brimming with 24 new products and a comprehensive travel incentive program was presented to over 600 distributors attending the "Project Rainbow" sales conferences of Typhoon Air Conditioning and Heat Pump divisions, Hupp Corp.

Three identical conferences kicked off the sales drive for distributors at resort hotels here and at Kiamesha, N. Y., and Palm Springs, Calif., between Sept. 22 and Oct. 6.

Addition of the new packaged air conditioners and heat pumps boosted the Typhoon line to 197 standard models. Included in the list are seven new air conditioning packages, nine new heat pumps, and eight new water chillers.

Prime trend indicators among the new array were three large-capacity units designed for roof-mounted installation, a 17-ton self-contained air conditioning unit, a similar 17-ton air-to-air heat pump, and a 17-ton heating and cooling unit incorporating a gas-fired furnace with capacity up to 500,000 Btuh.

John A. Gilbreath, sales vice president, indicated the emphasis on new product development by Typhoon was just one indication of the "profound and irreversible changes" taking place in the industry and its markets.

"Last year Typhoon intro-

(Continued on Page 4, Col. 2)

Carrier Bows 5 Lines of Room Units

RYE, N. Y.—Carrier Air Conditioning Co. last week unveiled for dealers five lines of Raymond Loewy styled room air conditioners for 1962, including a new series of seven budget-priced promotional units and a "Ready Mount" model of improved capacity and styling.

The Carrier line has been extended by nine models, for a total of 26. Through-the-wall and standard window mounting kits are available for all units, and expandable wing panels for quick and easy installation are available for 12 units — all models up to 14 in. in depth.

"The variety of units and the selection of installation kits gives additional flexibility," said Joseph S. Dougherty, room air conditioner sales manager who introduced the 1962 line at a meeting in the Westchester Country Club.

"We are offering through-the-wall kits for every model, in keeping with the trend away from window mounting in both homes and commercial establishments."

(Carrier reportedly has increased by 6% its prices to distributors on room air conditioners produced for 1962 sales. Several other manufacturers were said to be planning or considering a price boost on room units and other appliances.)

The five lines include: the

(Continued on Page 29, Col. 1)

Kelvinator Adds 4 Room Conditioner Series

DETROIT — Four new basic room air conditioner series by Kelvinator feature high speed cooling, flexibility of installation, permanent foam filters, and all are certified by the National Electrical Manufacturers Association to deliver full cooling power, according to the company.

● The "Spacette" series includes two models that are only 14½ in. wide and can be easily installed in windows 16 to 40 in. wide, conventional or steel casement, it was stated.

● The "Magic Mount" series consists of four models "readily installed in pre-assembled 'cradles' that require no screws or bolts."

● The "Custom" series includes three models with "high cooling capacities, three-speed master switch, and four rotating air deflectors for complete air circulation."

● The "Giant" series consists of two "extra-large capacity models, designed for large, open areas in homes, or for small business places."

All models have permanent foam filters containing a germicidal additive. Filters may be washed or vacuumed to remove accumulated dust, pollen, and mold. All room air conditioners have a new magnetic front, eliminating screws or knobs for easy removal of filter, according to the major appliance division of American Motors Corp.

"Magic Mount and Custom models are available with the electro-magnetic filter equipped with a small generator which charges the filter to electrostatically attract and hold airborne dust, dirt, and pollens, and even smoke. Air flow actuates the generator. Magic Mount and Custom models are avail-

(Continued on Back Page, Col. 1)

NHAW Finds Aug. Good, Sees Rise Continuing

COLUMBUS, Ohio — Continued progress is the word for business in general and for its "Trend Indicators," the Northamerican Heating & Airconditioning Wholesalers reported.

"Maybe the progress isn't as fast as some would like—and there are spotty exceptions," it was noted. "But business gives all indications of getting set for a real climb."

The NHAW report shows that total dollar sales of reporting members increased an average of 7.42% in August as compared to the previous August. For the first eight months of 1961, their sales were up 3.49% over the like 1960 period. Inventories on Aug. 31 were down 5.19% compared to a year earlier.

NLRB Nixes Threats, Common Situs Pickets

WASHINGTON, D. C.—The National Labor Relations Board recently ordered Local 142 of the United Assn. to stop threatening physical violence in order to force Piggly Wiggly of San Antonio, Texas, to cease doing business with the non-union San Antonio Refrigeration Co.

The board also upheld a trial examiner's recommendation that the union be required to cease inducing or encouraging employes of neutral employers to stop work to put additional pressure on Piggly Wiggly.

The union's actions in picketing the shopping center in which the Piggly Wiggly store is located did not meet NLRB standards for common situs picketing, the board said.

At the same time, the board dismissed Piggly Wiggly's complaint that the union violated the National Labor Relations Act by distributing handbills at or near Piggly Wiggly stores. It found that the handbilling was protected by the publicity proviso to Section 8(b)(4) of the Act.

In the spring of 1960, the union had sought to persuade Piggly Wiggly to hire a union contractor to install refrigeration fixtures in a new store.

Piggly Wiggly refused and gave the job to San Antonio Refrigeration, which had been doing its service and installation work.

The union's financial secretary than allegedly made threats of trouble. The union put pickets at the entrances of the not-yet-opened shopping center and began distributing handbills near the entrances of other Piggly Wiggly stores.

Employes of two plumbing subcontractors at the site refused to cross the picket lines.

Heating Firms To Cease 'Scare Tactics'

WASHINGTON, D. C.—Federal Trade Commission has recently accepted "cease and desist" agreements made by four Kansas City area heating firms who were charged with using "scare tactics" to sell furnaces.

The four firms, who consented to the agreements before public hearings were held though not admitting a breach of law, are Missouri-Kansas Furnace Co. of Kansas City, Mo.; Davis Furnace Co., Inc. of Kansas City, Mo.; Davis Furnace Co. of Independence, Inc., Independence, Mo.; and Kansas Furnace Co., Inc., Kansas City, Kan.

They were charged with gaining access to homes with deceptive offers of free furnace inspection or low cost cleaning, dismantling furnaces on the grounds of dangerous conditions, and then refusing to reassemble them in an effort to sell new equipment or make extensive but unnecessary repairs.

'Hot Cargo' Clauses Illegal Even Without Enforcement Request

WASHINGTON, D. C.—The National Labor Relations Board recently unanimously held that the signing of an employer-union contract containing a "hot cargo" clause is a violation of the Labor Management Relations Act, even without evidence of any request or attempt by the union to enforce the unlawful provision.

In its first such ruling since prohibition of "hot cargo" contracts was written into the labor relations law in 1959, the five-member board said:

"The legislative history rather clearly shows that the Congress was intent upon banning the entry into such contracts, thereby freeing the employer from such pressures and coercion as a union might exert to obtain contractual assent to prospective secondary boycotts."

The new statutory provision, Section 8 (e), bans any contract provision in which an employer agrees to refuse to handle the products of another employer or to cease doing business with him.

Agency Shop Legal, New NLRB Ruling Says

WASHINGTON, D. C.—The National Labor Relations Board held recently that the agency shop is a lawful form of union security contract under the Labor Management Relations (Taft-Hartley) Act.

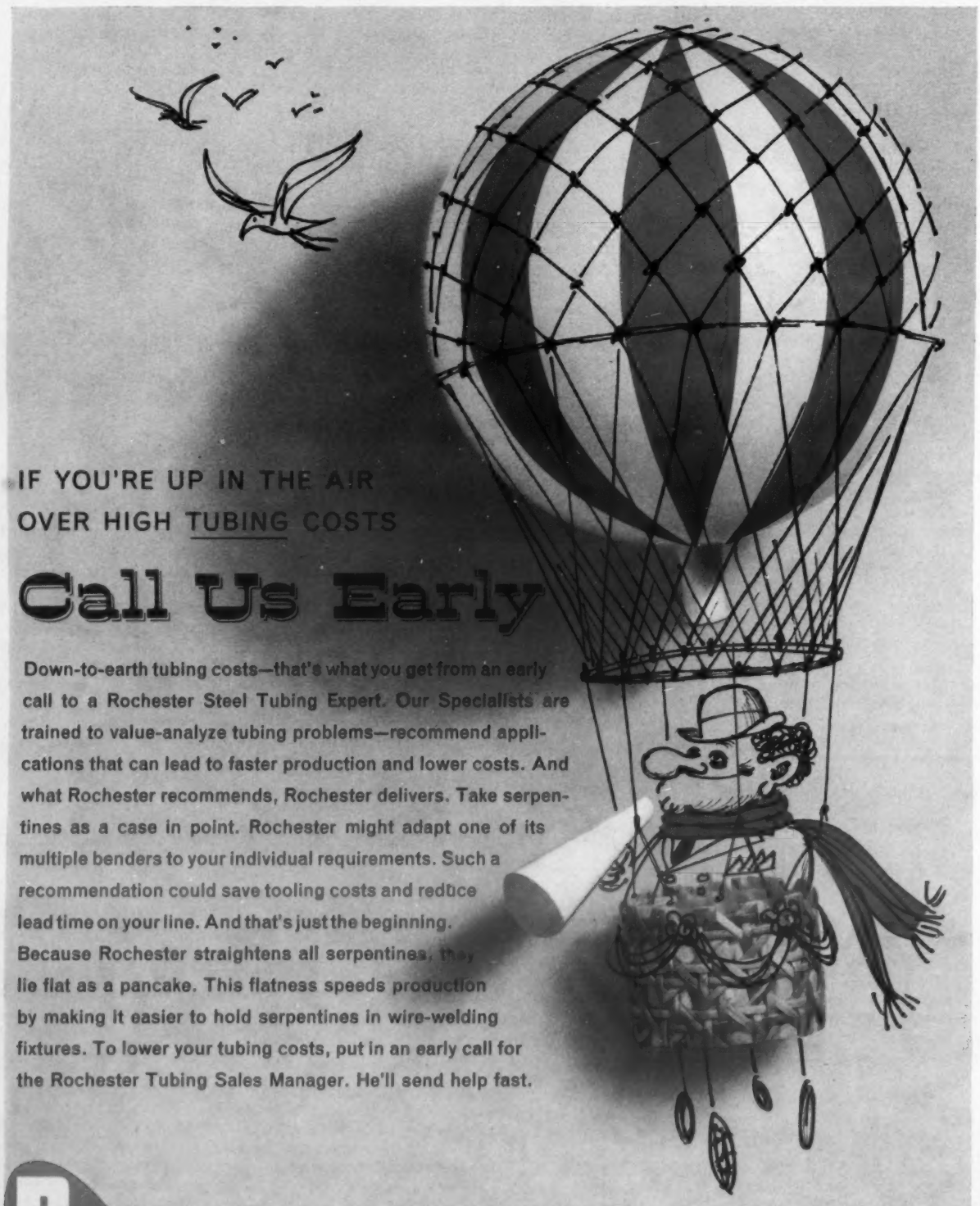
By a 4-1 vote, the board reconsidered and reversed a 3-2 decision of Feb. 20, 1961, in an Indiana case involving General Motors Corp. and the United Auto Workers, AFL-CIO.

In the new ruling, the board directs GM to bargain with the UAW on an agency shop arrangement to cover 14,000 non-union GM workers in nine plants in Indiana, a state with a right-to-work law.

Under the proposed agency shop, non-union employes would be required as a condition of employment to pay the union sums usually equal to fees and dues paid by union members.

Later, the U. S. Supreme Court refused to review a Kansas state supreme court decision that Kansas' right-to-work law makes the agency shop illegal.

This refusal has been interpreted as meaning that it is now up to individual states whether or not agency shops are permissible in their state.



IF YOU'RE UP IN THE AIR
OVER HIGH TUBING COSTS

Call Us Early

Down-to-earth tubing costs—that's what you get from an early call to a Rochester Steel Tubing Expert. Our Specialists are trained to value-analyze tubing problems—recommend applications that can lead to faster production and lower costs. And what Rochester recommends, Rochester delivers. Take serpentines as a case in point. Rochester might adapt one of its multiple benders to your individual requirements. Such a recommendation could save tooling costs and reduce lead time on your line. And that's just the beginning. Because Rochester straightens all serpentines, they lie flat as a pancake. This flatness speeds production by making it easier to hold serpentines in wire-welding fixtures. To lower your tubing costs, put in an early call for the Rochester Tubing Sales Manager. He'll send help fast.

RP STEEL TUBING BY ROCHESTER PRODUCTS

ROCHESTER PRODUCTS DIVISION OF GENERAL MOTORS. ROCHESTER. NEW YORK

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A MOTOR IS A MOTOR EXCEPT...

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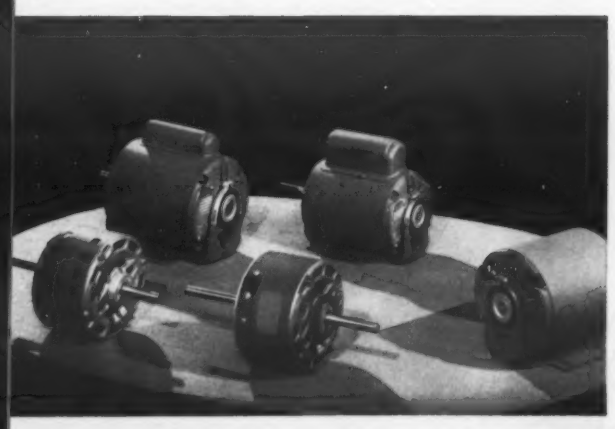
You get MORE THAN A MOTOR when you buy General Electric fhp motors



Select your motor needs from General Electric's complete line, specifically designed for belt- or direct-drive applications. Premium quality General Electric fractional-hp motors build customer satisfaction and help increase your sales.

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For original equipment or for replacement, General Electric offers added values in its motors for your heating and air conditioning equipment. These features mean "premium quality" motors for your customers, giving top performance and satisfaction.

And when you add the importance to your business of General Electric's fast sample service and expert application aid . . . prompt delivery and complete line availability . . . you can see why you get MORE THAN A MOTOR when you buy G-E fhp motors.

For information or help on fhp motor application or replacement problems, call your General Electric Sales Office where a Form G motor expert is ready to serve you. Write for bulletins GEA-6424 and GEA-6533, General Electric Co., Section 738-03, Schenectady 5, New York.

Progress Is Our Most Important Product

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Gorton F. Price Dies

ADRIAN, Mich. — Gorton F. Price, president of Primore Sales, Inc., here, died suddenly in his sleep last Monday. He was 64.

An industry veteran, he organized Primor Products, Inc., in Detroit in 1944 as a refrigeration parts sales firm. In 1949 he organized the Primus Co. in Addison, Mich., to make refrigeration systems. This firm was later sold to a group which formed the present Addison Products Co.

In 1953, he set up the Primor Products Co. in Adrian to make refrigeration systems for residential air conditioning. In 1955, Primor Products was sold to Borg-Warner Corp. Price then organized Primore Sales as a national sales agency for refrigeration and air conditioning valves.

Typhoon Line for 1962--

(Continued from Page 1, Col. 5)

duced 28 new products, and this year responds to the changes in customer needs with 24 new products," he said.

With a candor that distributors found refreshing in the sales conference setting, Gilbreath put 1961 in perspective as an "odd year" of high volume and pinched profits. Lower margins resulted not from a fall of demand but "from the industry's own actions," he asserted.

He underlined this criticism with the fact that sales records for the year from September, 1960, to the end of August, 1961, showed unitary equipment sales exceeded the year previous. "Sales were just distributed among different months."

Unlike other durable goods industries that bottomed in the winter, air conditioning sales slumped in the spring due to the construction slowdown that a bad winter fostered, he said. Unfortunately, he indicated, this led prices to tumble as manufacturers suffering from "inventory-itis" panicked.

'62 Prospects Dramatically Bright

Using the rainbow banner as a signal of the end of the market storm, Gilbreath saw prospects for 1962 as "dramatically bright."

With a pat on the back to the administration in Washington for its dedication to full employment and rapid economic growth, he reminded distributors that housing legislation changes would reopen that market to increased starts.

He also stated that commercial construction would accelerate as business followed its customers to the suburbs and as new retailing methods such as discount stores enlarged the retail structure and increased the need for air conditioning.

He also saw the replacement market increasing with many systems — fully amortized by owners — becoming 12 to 15 years old, and a greater number of industrial plants recognizing the value of air conditioning in improving efficiency and lowering costs.

Heat Pump Prospects

Reviewing heat pump prospects, Roland Pillat, product manager, Typhoon Heat Pump Div., saw the Southeast, Texas, and West Coast as the prime market for heat pumps. But, he also pointed out an expanding market in the Midwest and North for heat pumps in buildings where high internal heat loads are common.

He stated that since heat pumps cost comparatively little more than an air conditioning package unit, many new types of buildings now become heat pump prospects. The heat pump can handle the heating load during early morning and late fall afternoons, eliminating the need to start up the main heating plant for marginal heating jobs.

Added to Typhoon's line of self-contained air-cooled air conditioners is a new 17-ton model designed for roof mounting with accessory plenum and diffusers. This model is designed to take up no more roof space than its companion models, 8 and 10 tons, and is only 65 in. high, it was noted.

A similar development was offered in the RMU line. The new 17-ton RMU incorporates a gas-fired furnace with 300,000 Btuh capacity in the standard model and optional capacities up to one-half million Btuh.

It has optional accessories such as transition plenum, ducts, diffusers, and flue pipes, and is equipped with a low voltage control system and remote thermostat. It is available in a standard or low silhouette version.

Among the new packages for remote systems introduced were two new compact water chillers, 8 and 10 tons, built with capillary tube and factory wired with aquastat and freezstat included as standard equipment.

Chillers in the line from 30 to 75 tons have also been redesigned around larger compressors. In addition, all the water-cooled chillers are offered as air-cooled models with matching air-cooled condensers.

In the air-cooled split system line, a new single compressor 17-ton high-side unit has replaced a former 18-ton model having two compressors. The new unit, using centrifugal blowers, is housed in a cabinet 30 in. shorter than the former model.

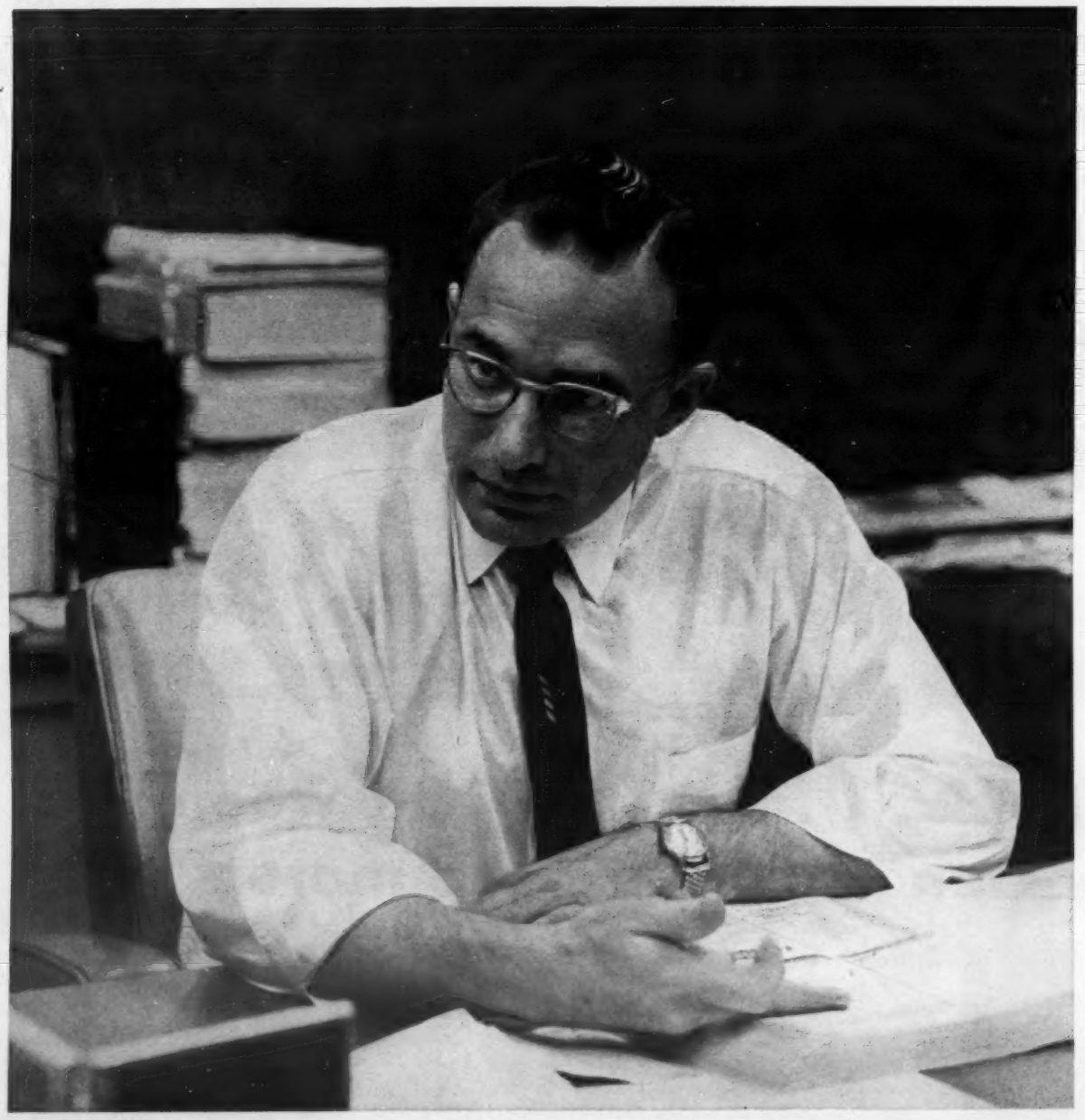
In addition, Typhoon showed two new propeller fan air-cooled condensing units in 20 and 25-ton capacities. The propeller fan condensing unit line now totals six models ranging from 8 to 25 tons.

Typhoon introduced a total of nine new heat pump units. Besides four new water-to-air models in 20, 25, 40, and 50-ton capacities, the division also announced a new 17-ton water-to-water self-contained package heat pump and a new 17-ton air-to-air model for roof mounting application. In addition, Typhoon is offering three new propeller fan heat pump outdoor units in 8, 10, and 17-ton capacities.

Topping off the sales presentation was the announcement by Typhoon of a new five-year European travel program. First destination on the program is a visit to Spain in 1962.

The distributors' "Reign in Spain" incentive program will extend this year for the first time, Gilbreath announced, for nine full months to allow the maximum number of distributors to participate.

Winners will jet to Madrid for an eight-day tour next November. In following years trips to other European countries will be offered.



"We use 14 Yellow Pages ads and listings to promote all phases of our business—sales and service!" says R. E. Klein, V.P., Airway Inc., Denver, Colorado. "Most of our advertising money goes into the Yellow Pages because that's our most effective way of reaching prospects who are ready to buy! We ask people who phone us how they came to call, and again and again they say they found us through the Yellow Pages. The Yellow Pages does an outstanding job of keeping our ten phones busy — all year round!"

Find Us Fast In The Yellow Pages

Display this emblem. It builds your business!

Display ad (shown reduced) runs under AIR CONDITIONING CONTRACTORS. Call the Yellow Pages man at your Bell Telephone Business Office to plan your program.

AIR CONDITIONING

ROOM AIR CONDITIONERS

PACKAGE AIR CONDITIONING

York refrigeration air conditioning

ICE MAKERS

STATE-WIDE INSTALLATIONS

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FREE ESTIMATES

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CENTER STAGE at the open house held recently by L. E. Minns Co. are: J. H. Horn, Larry Minns, and L. E. Minns, Sr.

L. E. Minns Holds Open House at New Location

HOUSTON, Texas—The L. E. Minns Co., wholesale distributor of air conditioning, heating, refrigeration, and ventilating equipment, recently staged an open house at its new location here.

The firm's home is at 1115 Naylor St. where it has opened up a new 20,000-sq ft warehouse with a 5,000-sq ft city sales and self-service area.

The dock area will accommodate as many as 12 trucks at a time. There is railroad siding for loading and unloading four railroad cars at a time.

The company is having a banner year in 1961, it was reported, with sales on Heatwave equipment exceeding 1960 by 106%.

Atmos-Pak Names Kennon G. Hull National Sales Mgr.

OSSINING, N. Y.—The appointment of Kennon G. Hull as national sales manager for Atmos-Pak, Inc., here has been announced by George A. Belsky, executive vice president.

K. G. Hull

Atmos-Pak manufactures roof-mounted, prefabricated heating and/or cooling equipment.

Hull was formerly eastern regional manager for Janitrol Heating & Air Conditioning, division of Midland-Ross Corp. He served 26 years with Janitrol.

Preparatory to a stepped-up sales drive which will begin this fall, Hull is organizing territories, contacting representatives, and developing sales data.

St. Louis Skyscraper To Get Conditioning

ST. LOUIS—The $9,000,000 20-story Executive Office Building to be erected in downtown St. Louis will be air conditioned with the latest type of high-velocity peripheral induction systems, it was announced recently.

The new skyscraper will contain approximately 250,000 sq ft of office space with individual floor areas of about 12,000 sq ft. Completion is planned for early 1963.

York Appoints L. P. Jacobsen to Head East Central Zone

YORK, Pa.—L. P. Jacobsen has been named manager east central region, for York Corp., subsidiary of Borg-Warner Corp.

In making the announcement, Russ Rising, vice president of York, stated that Jacobsen would move to Cleveland from Los Angeles immediately and assume full responsibility for the sale of engineered machinery products offered by York in Ohio, Michigan, Kentucky, and West Virginia.

'Hans' White Dies

ST. PETERSBURG, Fla. — James "Hans" White, founder and head of Sealed Units, Inc. here, died Wednesday, Oct. 4.

Widely known throughout the industry, White for many years had been active in the wholesale repair and rebuilding of hermetic systems, originally in New York City and for the past several years in Florida, where he had moved for his health.

His activities as a consultant were little publicized, but for many years White had assisted leading manufacturers in designing air conditioning and refrigeration systems, particularly heat pumps in more recent years. In fact, manufacturers, within their own circles, often referred to White as "Mr. Heat Pump."

Born in Germany, he entered the refrigeration field in the Twenties with Frigidaire's overseas operations.

Activities of the Sealed Units firm will continue under the direction of the widow, Mrs. Nettie White, it was announced.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

PENN WATER VALVE OUTSELLS ALL OTHERS

ONE BIG REASON is that the Penn "246" stays on the job longer than ordinary valves. In the Penn water valve, two diaphragms keep water away from the bellows, range spring and sliding parts. Thus, water with its rust, corrosion and sedimentation never has a chance to attack these "working parts" and cause destruction. Ask your wholesaler... he'll tell you the Series 246 is the best.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Filtration System Cuts $100,000 Off Cost Of Air Conditioning Big Newspaper Plant

EQUIPMENT IN A PENTHOUSE conditions office area. The area is served by 7 supply and 14 exhaust systems. A supply fan and capillary air washer are shown left and center. At right is a return air fan.

MONTREAL, Que., Can.—By removing ink mist from press-room air, thus permitting it to be recirculated, a specially designed filtration system saved the *Montreal Star* newspaper $100,000 in first cost of its air conditioning system and about $3,000 annually in operating costs.

The ink mist filtration system was designed as part of the air conditioning system in the *Star's* new $9 million printing plant and office building here.

This seven-story building contains approximately 3,200,000 cu ft. The lower three floors and basement contain the industrial areas of reel room, press room, and mail room. The upper four floors house the composing and stereotype departments, general offices, and a cafeteria.

The industrial areas are all conditioned from a mid-level equipment room which contains seven high pressure unit type capillary cell heating and cooling units built by Trane Co. of Canada, Ltd. Each unit is equipped with separate Class III fan and sound attenuating devices.

Return air is handled by four high pressure fans with sound attenuators on both the suction and discharge sides.

It is possible for the system to handle 100% outdoor air when desirable. All air is recirculated to reduce heating and cooling costs.

In recirculating the air from the press, reel, and mail room areas, special effort went into the design of a filtration system which would provide adequate ink mist and paper dust extraction.

Studies In Old Plant Aided In Selection Of Filtering Equipment

The design engineers requested, and the owners agreed, to construct filter testing apparatus in the owner's old plant. Several types of media were tested, including electro-static filters.

After many weeks of trial and error, a double stage continuous roll type of paper filter proved to be most effective. This was backed up by a third stage of V-type stationary paper filter.

These filters were located in 16 filter boxes arranged over the presses so as to capture the rising mist flung into the air by the rapidly rotating ink rollers on the presses. Supply air is introduced lengthwise to the press lines to contribute to the upward flow of ink mist into the filter boxes.

Ink Filtration Saved Much by Allowing Air Recirculation

It was estimated that if a suitable filtration system had not been discovered for ink mist extraction, the air could not be recirculated from the press room, an additional 176,000 cfm of outdoor air would have to be introduced into the refrigeration cycle.

In summer, this air would have to be cooled from 75°F wet-bulb base design to 65½° inside wet-bulb condition. In winter, the same amount of air would have to be heated from a base design temperature of -15° to a practical supply air temperature of about 57°.

To cool and heat this air would require an additional 515 tons of refrigeration and a 425-hp boiler. At a cost of $400 per ton the extra refrigeration would cost $206,000 and the boiler approximately $40,000—for a total of $246,000. The installed cost of the filtration system was about $150,000, or a savings of almost $100,000.

A negative pressure is maintained in the press room to prevent the ink mist from penetrating into other areas. Return air exceeds supply air, and the difference is the infiltration into the area. The excess air at press room temperatures is being used to cool the extreme heat gains caused by motors in the equipment room area.

Transformers Cooled

The transformers and rheostat controls for press motors are housed inside a room in the industrial area. The room is ventilated by a sufficient volume of outside air to maintain a room temperature of less than 100°. During the winter the exhaust air from the room is used to de-ice the paper chutes that deliver the bundled papers from the mail room level down to the open truck dock at street level.

Areas other than the reel, press, and mail rooms (primarily office space) are condi-

HERE WE GROW

VIKING adds primary plant

How do you produce the best product of its kind in the world? The answer is simple — through controls — controls, every step of the way, from its beginning to its end. For it is through repeated controls that demand perfection in production that you approach perfection in the final product.

Now, Viking Copper Tube has achieved the last step in the control of its thin-wall copper tube — the addition of a brand new primary mill. Built for its special purpose and equipped with the very latest and finest electronically controlled tools and machinery designed by Viking Engineers, this mill will fashion from pure electrolytic copper billets the best copper tube the refrigeration and air conditioning field has ever seen. Next time you are in Cleveland, you are cordially invited to see this great step in Viking's continuing growth.

VIKING

VIKING COPPER TUBE COMPANY
SUBSIDIARY OF CERRO CORPORATION

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tioned from a penthouse equipment room.

The area is served by seven supply and 14 exhaust systems. The supply system handles 250,000 cfm. As in the industrial area, outdoor air is used to cool the office area when weather permits.

Both supply and return air systems are high velocity. Supply air fans operate at 6½-in. S.P. and return fans at 5½-in. S.P.

General office areas are conditioned by high pressure dual duct peripheral units, and interior offices are served by a high pressure dual duct system. Air in the interior office system is supplied to sound attenuator mixing boxes and then distributed through ceiling diffusers spaced in 120-sq ft modules.

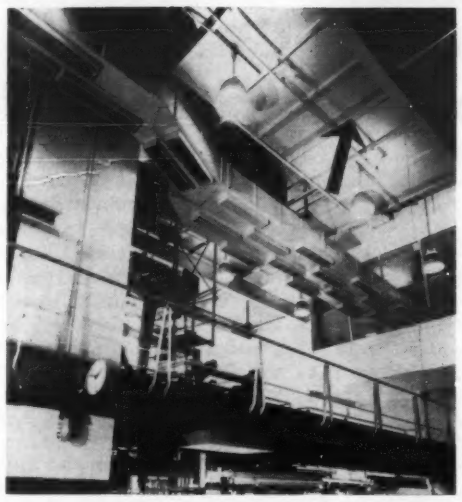
Each area has its own individual pneumatic controls.

The office areas are maintained at 75° dry bulb and 40 to 50% r.h., as compared to 80° dry bulb and 45% r.h. in the industrial areas.

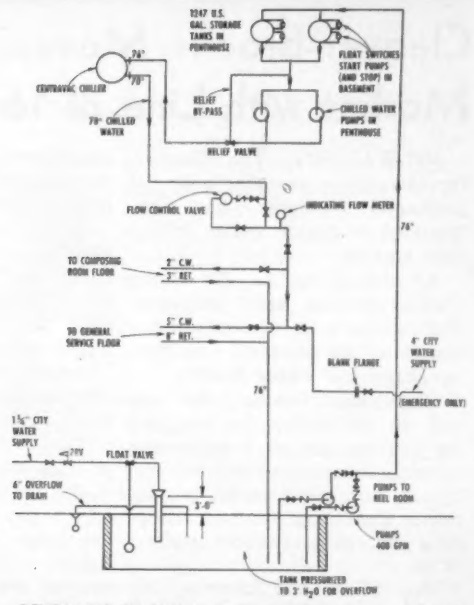
Chilled water for cooling in all building areas is supplied by two 600-hp Trane hermetic "CenTraVacs" in the roof penthouse. Heating is provided by three unit type oil-fired low-pressure boilers with a total capacity of 550 hp.

In addition to the two CenTraVacs which satisfy building comfort requirements, another 100-hp CenTraVac is employed to cool molten metal in the stereotype room. This is where the printing plates are cast from metal.

Chilled water is used in this system to extract the heat of fusion and to sensibly cool molten metal from 600° to a practical handling temperature. Cooling of newly cast metal pigs, plus cooling of casting boxes and shavers that handle and dress molter metal, are functions of the stereo water cooling system.



AIR IS SUPPLIED to press room through grilles in duct running across the ceiling at top center of picture. A similar supply duct is to the right and not shown. Between them is a filter box (arrow). Conditioned air is discharged down to the press area where it picks up ink mist and rises back to the filter.

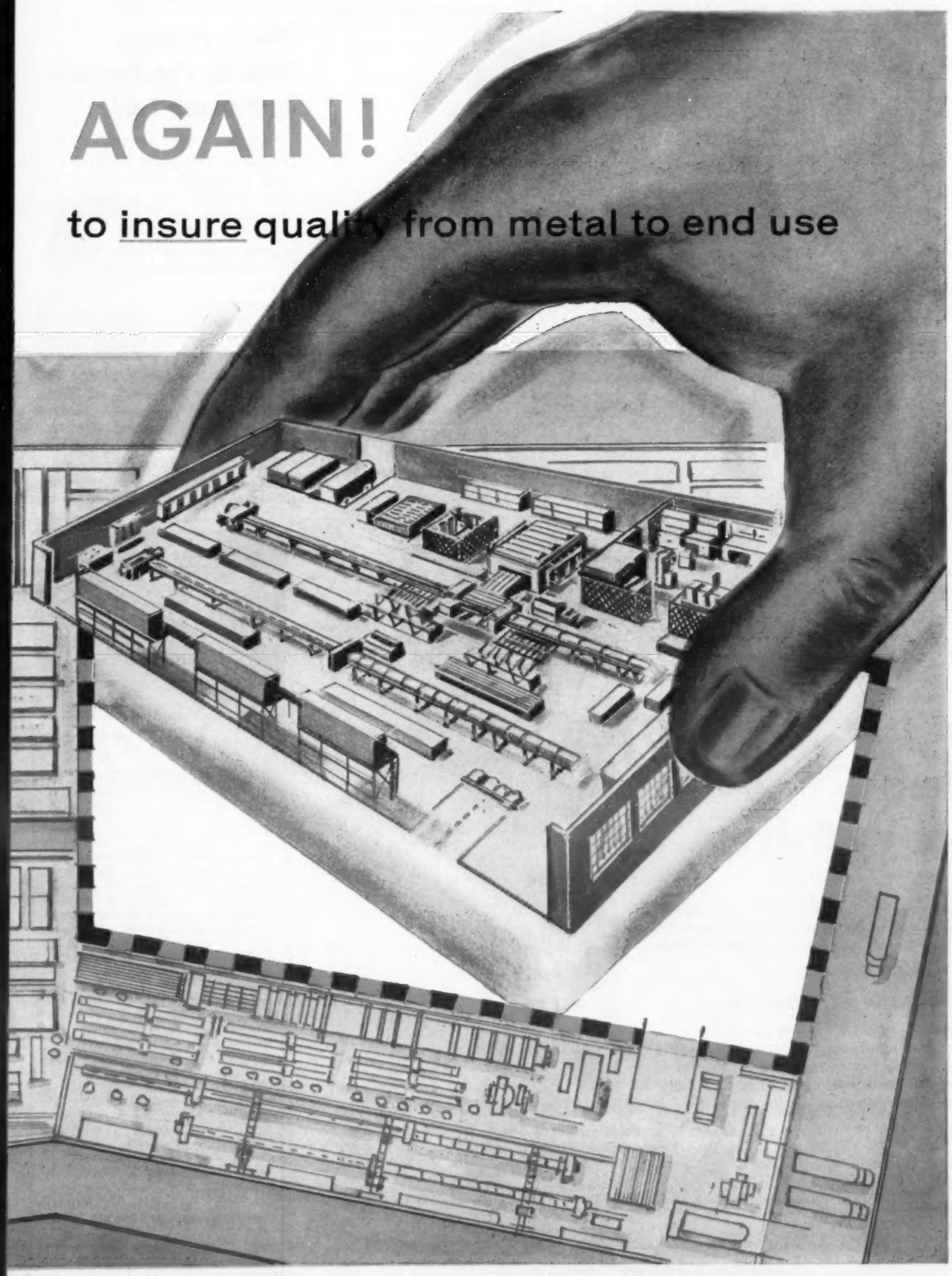


SCHEMATIC DIAGRAM of stereo water system. Intricate piping arrangement is necessary because water flow rate varies widely. Flow valve shown limits flow rate to 400 gpm so penthouse tanks are not completely drained. Basement storage tank is pressurized to head of 3 ft because building drain is above the bottom of the tank. Duplicate pumps are for standby.

Water flow within the closed circuit system varies from 400 gpm to practically nothing. Chilled water is provided at a differential of 76° to 70°.

Condenser water for year-round use is pumped to an outside cooling tower at 95° water off, or by-passed to a sump basin inside the equipment penthouse if the water off the condenser is 85°.

Architect for the building was Barott, Marshall, Merrett and Barott. The mechanical systems, including plumbing and fire protection, were designed by Lorne Long of John Hosking and Associates. The air conditioning contractor was Long-Aboud Engineering, Ltd. All are located in Montreal.



York Appoints R. W. Thomas

YORK, Pa.—Robert W. Thomas has been appointed assistant to the vice president, it was announced by Austin Rising, vice president and manager of marketing for the York Corp.

R. W. Thomas

Thomas will function in a staff capacity to help promote and sell all York products through regular line selling organizations.

"This is a new position," Rising stated, "created to meet the needs of an expanding air conditioning and refrigeration market. An increasing flow of new products and application ideas plus new concepts, such as urban development projects, indicate a need for increased attention and emphasis."

Rising said Thomas will work through division sales managers. Formerly with a major competitor, Thomas served as manager of its New York office before joining York.

Cleaver-Brooks Moves Into Small Commercial Market with Line of 16 Compact Hot Water Boilers

MILWAUKEE—The Cleaver-Brooks Co., manufacturer of packaged boilers, has announced a major move into a new market.

According to H. F. Holtz, Cleaver-Brooks vice president, the company is now offering a complete line of small, compact, packaged hot water boilers.

Called the "Beaver," the new line of 16 models is designed for heating and air conditioning systems in small schools, motels, hotels, swimming pools, restaurants, apartment houses, shopping centers, and other applications.

The 16 models have a Btu range of 200,000 to 3,000,000 with a price variance from $300 to $3,000. The product line and market expansion moves the company's product line almost to the residential heating plant level, it was stated.

Holtz pointed out that the new products represent a natural evolutionary development for Cleaver-Brooks. He noted that the company already produces package boilers from 15 through 600 hp for larger commercial, institutional, and industrial applications.

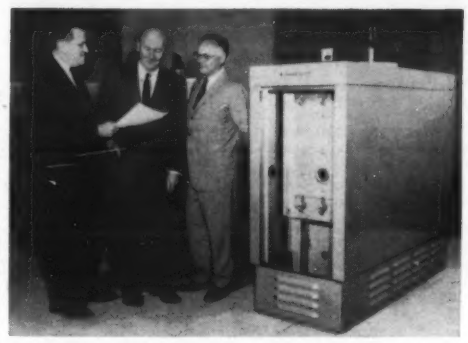
Two years ago Cleaver-Brooks acquired the Springfield Boiler Co., Springfield, Ill., which moved the company into the large water tube packaged boiler and field erected boiler market with units delivering as high as 600,000 lbs of steam an hour.

The decision to enter the small boiler field was the result of an exhaustive two-year study and design development program, it was pointed out.

Holtz noted company marketing surveys revealed an annual market potential of about 90 million dollars in sales anually. He forecast a 3 to 5% market penetration for Cleaver-Brooks within the next two to three years.

In addition to area heating, the new Beaver boiler can heat water for kitchen and bath use as well as swimming pools and can be used with steam absorption air conditioning systems on a year-round basis.

First models of the Beaver will be gas fired, AGA-approved units, which constitute about 80% of the market, the company said. Oil-fired units and low pressure steam boilers will be available in the near future.



FIRST ORDER for the new small package boiler, the Beaver, is shown by H. F. Holtz, left, vice president of Cleaver-Brooks Co., to J. C. Cleaver, center, president and chairman of the board; and Fred A. Loebel, president of Aqua-Chem, Inc., a Cleaver-Brooks affiliate.

Manufacturing of the small packaged boilers will be at the Waukesha plant of Aqua-Chem, a publicly owned affiliate of Cleaver-Brooks that specializes in treatment plants for saline and brackish water. By the end of the year, Holtz said, Cleaver-Brooks plans to be producing the Beaver in its Stratford, Ont., plant.

The company will utilize its existing network of 65 agents in the U. S. and Canada and plans to build a heating wholesaler force through these agents.

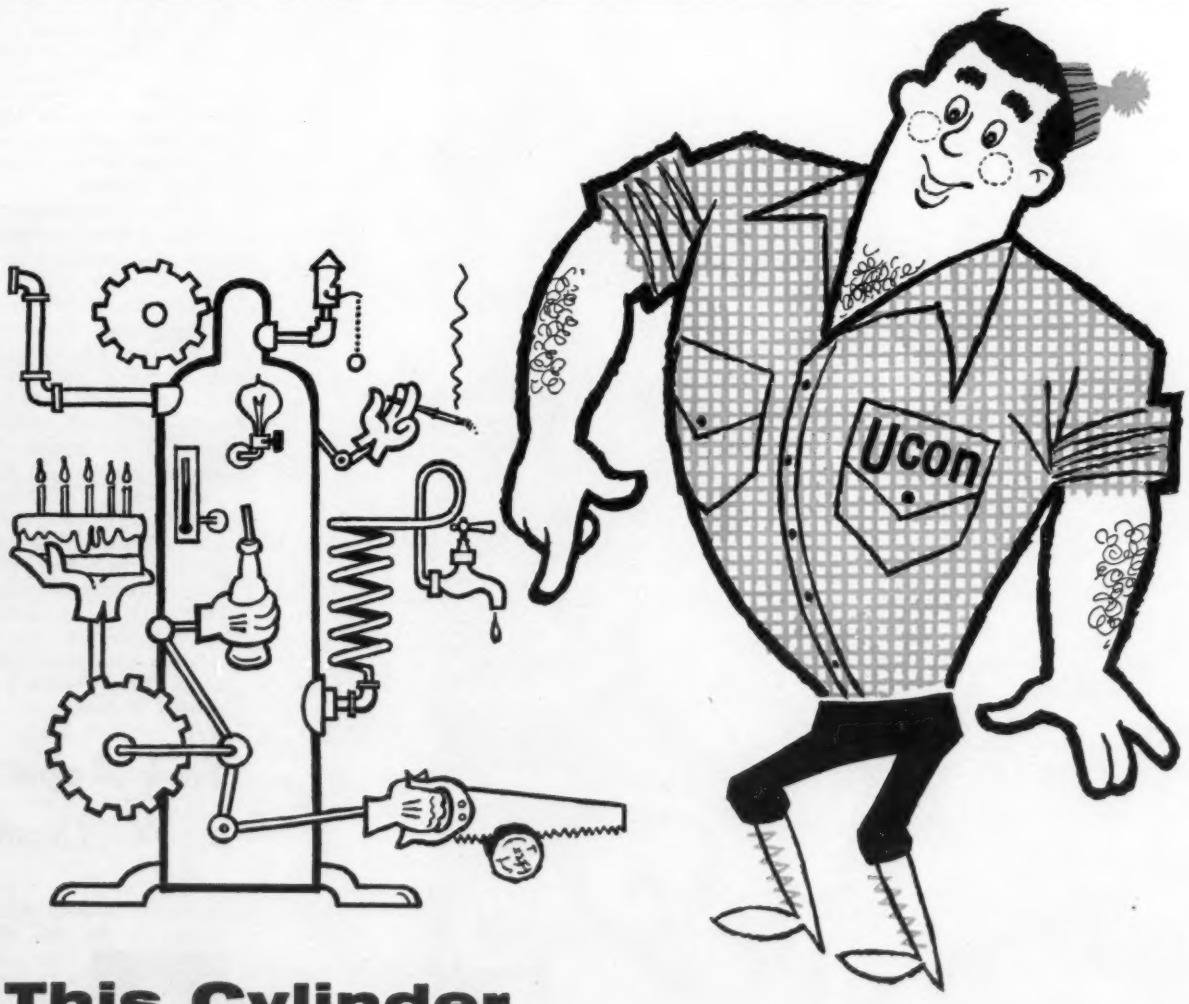
A series of sales meetings, scheduled for October, has been planned to introduce the Beaver line to the Cleaver-Brooks field force. These meetings were set for Milwaukee, San Francisco, New Orleans, and New York City.

Rheem Promotes Price To Vice President In Research Field

NEW YORK CITY—Lyttleton Price Jr. has been promoted to vice president-research and development of Rheem Mfg. Co.'s Home Products Group, Chicago, it was announced by C. V. Coons, Rheem executive vice president, New York City.

L. Price, Jr.

Price joined Rheem in 1940 as plant superintendent at South Gate, Calif., and held various positions in product development until his appointment in 1954 as manager of research and development for the Home Products Group.



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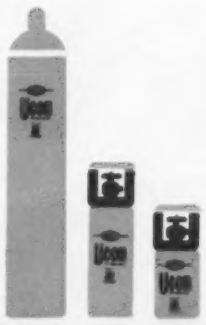

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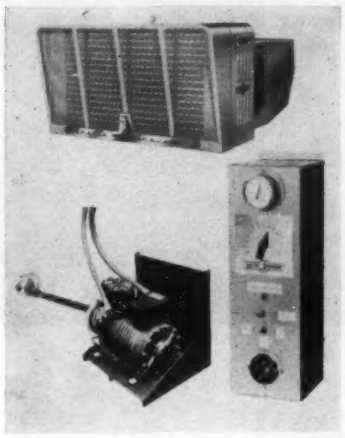
Mobile, Alabama

Arctic Traveler Claims Increased Cooling Capacity for New Truck Unit

MONTGOMERY, Ala. — Arctic Traveler here has announced an addition to its "Leader Series" of mechanical refrigeration units, designed for delivery trucks, which boasts increased cooling capacity.



ARCTIC Traveler's 'Super Leader'

Called the "Super Leader," the new unit features an exclusive hermetic type, extended shaft, high capacity compressor which is linked to the power take-off by an automotive type, tubular drive shaft, the company said.

This assembly mounts on a bracket on the truck chassis and supplies the refrigerant for the nose-mounted Leader refrigeration package. The compressor and 3-hp, 220-volt a.c. motor are on the same shaft thus eliminating the need for belts, pulleys, etc., it was stated.

"In over-the-road operation," the company explained, "a simple magnetic clutch, controlled by a thermostat, automatically engages the compressor as cooling or winter heat is required. Because of the cushioning effect of the clutch, power transmission is positive yet smooth and quiet.

"To prevent difficulty in shifting gears, a switch automatically disengages the magnetic clutch when the truck's clutch pedal is depressed. Since the compressor and electric motor are on the same shaft, the armature serves as a flywheel to further assure smooth operation.

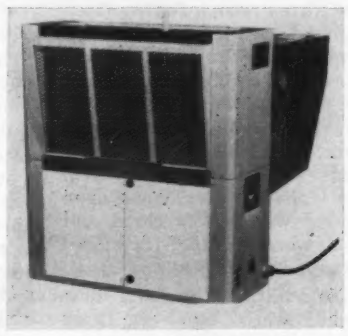
"When the new Super Leader is operating on stand-by plug-in, the magnetic clutch automatically disengages the PTO. The electric motor within the compressor comes on and off automatically as directed by the thermostat."

The nose-mounted refrigeration unit houses the condenser, receiver, all aluminum evaporator, and fans. Controls are housed in a separate box which mounts on the front of the truck body for easy access. Self sealing-flexible refrigerant lines connect the unit to its compressor.

Frigikar Completes Road Tests on '4 New Concepts' In Transport Units

DALLAS—Frigikar Corp., manufacturer of nationally distributed automotive, truck-cab, and transit-bus air conditioning, announced that it has successfully completed extensive laboratory and road "torture" tests of "four new concepts of super cargo transport refrigeration for protection of perishables in truck trailers."

Frigikar President Bert J. Mitchell said the tests climaxed a five-year program of research and development, and that the company has begun full-scale production of the "uniquely engineered" "Frigiking" refrigeration units. Ground for the company's extensive factory expansion was broken here recently.



FRIGIKING'S 'Super TR-550'

At the same time, he revealed results of one of the tests of the units conducted recently in the field, under the supervision of Henry O. Kirkpatrick, who is the company's vice president in charge of transport refrigeration.

"In seven-and-a-half hours, the newly developed Frigiking model 'Super TR-550' unit pulled down the temperature of an empty 40-ft trailer having only 4 in. of insulation, from 84°F to -10°, in 92° ambient temperature. And the trailer had been absorbing plenty of Florida sunshine," Mitchell said.

He said Kirkpatrick reported that temperatures as low as -21° had been recorded on an accurate potentiometer during these field tests. The Association of Food & Drug Officials' code requires only a 0° maximum temperature for transporting frozen foods, Mitchell added.

Additional models for refrigerating railroad reefer cars, perishable cargo containers, and city delivery trucking fleets will go into production on completion of the Frigikar plant expansion now under way.

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THERMO® EXPANSION VALVE

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2. TCL—Pilot Thermo® Valve
3. H290—Line Strainer

Alco's New P. O. S. Valve is engineered with the Solenoid Pilot Stop Valve as an integral part of the P. O. Valve.

ALCO P. O. S. VALVE ASSEMBLY—designed and engineered specifically for wide load applications—particularly recommended for refrigeration systems having capacity reduction—the ALCO SOLENOID PILOT STOP VALVE insures positive liquid "Shut-off."

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ALCO LIQUID LINE STRAINERS—insure positive protection of working parts from solder and dirt.

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CANADIAN AGENT: A. C. & R. Products Ltd., 2857 Lawrence, E. Scarborough, Ontario.
Excluding the provinces of British Columbia and Alberta.

Latin American Students, Medical Cases Flown to U.S.

The observation deck was crowded with happily crying people and well-wishers as the first group of Latin American students and medical cases boarded the Braniff jet for a free trip to the United States.

There was music, there were Panamanian diplomats, the American ambassador to Panama—and representatives of Gibson Refrigerator Div., who were making the trips possible.

Gibson sales vice president W. C. Conley originated the idea. He realized that the first three return flights from Panama, during Gibson's giant dealer airlift involving more than 5,000 people, would be empty. A committee of Conley's designation found some 90 Latin American students who wished to study in the United States, some even having won scholarships, but who were unable to afford transportation costs.

In addition, on this first flight, were two or three medical cases—people whose only hope for recovery is by treatment in the United States.

The student airlift was hailed by Panamanians and other Latins as a brilliant stroke for cementing intercontinental relationships and as an example "that business, even big business, has a heart; it cares about people." No restrictions were made on choice of students by the curriculum that they were pursuing.

BACK TO SCHOOL in the United States would have been impossible for these scholarship winners from Latin America until the Gibson Refrigerator Div. of the Hupp Corp. heard of their plight. The first group of students in "Operation Friendship" arrived at Baltimore's Friendship Airport on Sept. 7. Don H. Gearheart, president of Hupp, (second from right), is shown welcoming (from left to right) Miguel Espino, Isaias Mock, Leonel Herrera, and Jose G. Chiari.

World Trade Opportunities Listed by BDSA

WASHINGTON, D. C. — An Australian firm is seeking an agency for U.S. commercial refrigeration equipment, the Business & Defense Services Administration of the U.S. Department of Commerce reports.

The firm is Andrew Barton & Co. Pty. Ltd. of 69 Anne St., Brisbane, Queensland. It sells to restaurants, general stores, butchers, government offices, and hospitals and can handle any lines sold to these types of businesses, BDSA says.

Other export opportunities listed by the agency are:

From **Iran,** Aderan Co. Ltd., 42 Ave. Shah, Kohanim building, is seeking an agency for refrigeration equipment and facilities for cold storage warehouses, small food manufacturing enterprises, refrigerated railroad cars, and refrigerated trucks.

From **Iraq,** Tahan & Asady Co., Thowra St., Ashar, Basra, wants to purchase air conditioners, refrigerators, freezers, and air coolers.

From the **Trucial States** in Arabia, Shagwandas Parshotamias & Bros. of P. O. Box 485, Dubai, wants to buy air conditioning equipment.

From **Austria,** Franz J. Muhvic, 4 Stubcaring, Vienna 1, wants to buy or serve as an agent for refrigerating and air conditioning appliances. Muhvic's firm currently acts as Austrian representative for several foreign manufacturers.

Witcolite Sales Rep Named In Canada

NEW YORK CITY — Ibex Reg'd, Montreal, Que., Can., has been appointed exclusive sales representative in the Province of Quebec, eastern Ontario, and the Maritimes for "Witcolite," an underground pipe insulation, according to Witco Chemical Co.'s Pioneer Products Div.

Witcolite is a permanent insulating and corrosion-resisting material for the protection of underground pipelines.

Fairbanks-Morse Names Carl W. Batkay

CHICAGO—Carl W. Batkay has been appointed sales manager of Fairbanks, Morse & Co.'s International Div. at Fair Lawn, N. J. A veteran of 20 years with the division, he was assistant sales manager.

Bundy can mass-fabricate practically anything

Thoughts on Air-Cooled Condensing

By Charles Schreeder, Chief Engineer, Larkin Coils, Inc.

Air-cooled condensers may be applied to refrigeration compressors in either of two forms. The first is a central condenser serving a number of compressors and the second is the individual application of an air-cooled condenser to a motor compressor.

Most manufacturers of air-cooled condensers use a basic rating, usually based on 40° suction, 120° condensing temperature, with 90° entering air DB. At these operating conditions, the air-cooled condenser must reject 20% more heat than the evaporator picks up. Other operating conditions of head pressure and suction pressure change this figure; the lower the suction and the higher the head pressure, the greater the heat rejection by the condenser must be compared to evaporator load.

With an increase in entering air temperature for the same condensing temperature, or with a decrease in condensing temperature for the same temperature entering air, the size of the condenser must be increased. For example, if a 15° TD between entering air and condensing temperatures is desired, for the same suction pressure the air-cooled condenser must be twice as large as the so-called "basic rated" condenser.

When selecting a multi-circuit air-cooled condenser for use on a number of motor-compressors, it is common practice to list the evaporator load, the suction temperature, the entering air temperature, and the desired condensing temperature for each motor-compressor which is to be handled by the air-cooled condenser. By using a multiplier, which in effect converts the evaporator capacity to the basic rating of 120° condensing, 40° suction, and 30° TD, the evaporator loads are evaluated in terms of a fraction of the basic rating of the condenser.

The sum of these adjusted capacities is then totaled and an air-cooled condenser selected, the basic rating of which is equal to or greater than the sum of the adjusted evaporator loads.

The air-cooled condenser is then multi-circuited in terms of the total number of tubes available at the entering air face, regardless of the number of tubes deep in the direction of air flow.

For example, for an adjusted load of 248,000 Btuh to be rejected by the condenser, if the air-cooled condenser selected were 20 tubes wide, then the loading on the condenser could be varied from 20 circuits at 12,400 each to one circuit of 248,000. In practice, however, the adjusted evaporator loads vary considerably among themselves and it is then necessary to select a number of tubes which is a proportion of the total capacity the air-cooled condenser will handle with all adjusted evaporator loads.

Any air-cooled refrigeration system which operates with ambient air temperature lower than the temperature corresponding to the highest pressure to be maintained within the system requires an extra charge in the system to allow for flooding of the air-cooled condenser.

Controlling Condensing Temperature (Pressure)

Since this condition will prevail whether one large air-cooled condenser is used on a number of motor-compressors or whether each motor-compressor is equipped with its own air-cooled condenser, the amount of refrigerant necessary is the same for either system, except for the lines connecting the motor-compressors to the central air-cooled condenser.

Since the capacity of an air-cooled condenser varies directly as the difference between the entering air dry-bulb temperature and the condensing temperature of the refrigeration system, and since the air dry-bulb range in some localities can range as much as 100° or more from summer to winter and can even change 30° or more in one day, some means must be employed to keep the condensing temperature (and pressure) sufficiently high to assure efficient operation of the liquid refrigerant expansion device; otherwise the refrigerant cycle will not function properly.

Larkin uses a "Positrol" system which is available in two different styles. The first of these is a completely automatic system which uses two valves. These valves can be set on the job to maintain any head pressure desired, winter or summer, and the system will be completely automatic.

The semi-automatic system consists of one valve only with a hand valve, and some additional attention is involved in year-round operation of this semi-automatic system basically, this means opening the valve in the summertime and closing the hand valve in the wintertime.

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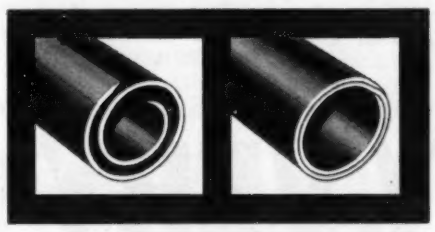
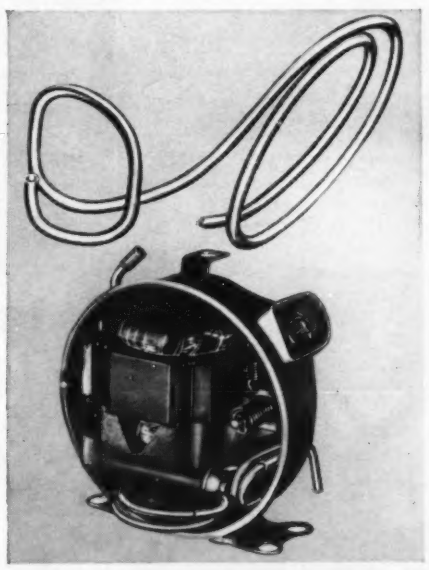


Bundyweld, double-walled from a single copper-plated steel strip, is metallurgically bonded through 360° of wall contact. It is lightweight and easily fabricated . . . has remarkably high bursting and fatigue strengths. Sizes available up to ⅝" O.D.



The *discharge coil* for this *air-conditioning compressor* has one end sized to ⅛" I.D.; tight-tolerance fabrication with Bundyweld allows coil to clear inner casing and outer shell of compressor.

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"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

Inside Dope

By GEORGE F. TAUBENECK

(Continued from Page 1)

est businessmen are beginning to realize all over again that acquisition of a customer's long-term good will is more important than the entering of an immediate order.

They know that permanent customers are won and kept by salesmen who understand consumer needs and desires.

It is the job of the salesman to find out what these needs and desires are, and how they can best be satisfied. If successful at this, they can write their own tickets.

How to Succeed In Selling

One of the most important assets which any salesman can command is the ability to speak and write clear, communicative English.

The salesman who possesses a warehouse of knowledge about his product and how to sell it, and *who is able to express* his own personal evaluation of this knowledge, surely is a servant of the common people.

Why? Because he is helping them to learn what they want to know, and assisting them to lead more carefree lives.

The salesman's job fundamentally revolves around his understanding of human nature, plus his ability to express himself clearly, simply, and concisely.

A basic understanding of applied psychology, coupled with an ability to stand back and observe sales plans from a long range view, will whisk the neophyte dealer or salesman well along the road to success.

If he is able to grasp a human situation rapidly, and quick to suggest time-tested methods of solving that human equation, he will be a "natural" in the specialty merchandising business, and he'll go far.

Tacking on Your Tact

Contrariwise, the man who becomes discouraged easily, and who lacks "stick-to-itiveness," had best not embark on a sales career in this business. Competition is too tough for "quitters" to last.

One trait which any self-respecting merchandiser should cherish is a peculiarly persuasive —but elusive—quality. It is born of brains and sensibility—and its name is "tact."

Tact is one of the born or "made" salesman's most useful tools in winning friends and influencing customers.

Without resorting to the far-flung extremes of either pugnacity or "yes man" pussyfooting, the tactful individual presents his side of the question in a diplomatic fashion so winningly that he gets the prospect's name on the dotted line.

So, young man, if you measure up to these qualifications—or can acquire them—selling in the home automation field may provide the opportunity you are seeking.

More comfortable homes—like automobiles—are here to stay.

Stories of the Week

"I've decided to turn over a new leaf, and try for Heaven."

"Yeah?"

"Yeah. If I were in Hell, where could I tell someone who annoys me to go to?"

"Had a wonderful dream last night. Marilyn Monroe and I spent a weekend alone on a lake. What luck!"

"Yeah? Tell me about your luck. How was it, anyway?"

"Man! If only it were true. I caught six bass, and not one weighed less than nine pounds."

Oddity of the Week

Detroit Policeman John Manning bet $20 on a horse named "Jackie Van" with Abe Rebeck —then arrested the latter for bookmaking.

Rebeck was fined $100, but came out ahead of the deal. You see, "Jackie Van" paid $251 for the $20. Inasmuch as the bet was made with police money the bookie couldn't pay off legally—and didn't.

Philosophy of the Week

We have a wise friend whose ambition in life is to acquire experiences worth owning. His argument is that experiences constitute the only real wealth in this world.

An experience that is really worth having and owning does not have to be insured. It is never subject to any tax, and your executor won't have to account for it. Your heirs will relish their recollection of your tales of it.

Such experiences almost are the only things a man can acquire that someone else does not have some kind of a stake in or claim. Experiences are really your own—to have and to hold for keeps.

Quotes of the Week

To be human is to admit we are limited and fallible, frail in all our powers, and prone to perpetual self-deception, fomented by pride. To be human is to admit we are constantly open to corruption and error, and that these are never more damaging than when we are too sure of our rectitude to allow even the possibility of correction. To be human, further, is to confess that our sins are no less real, no less offensive, than those of our enemies, and that even our virtues may mislead us and betray us the moment we complacently acknowledge them.—LEWIS MUMFORD.

Human beings thrive not on surfeit but on modest sufficiency. PHILLIP H. PHENIX, *Dean, Carleton College.*

The road to the future is never a straight line. In fact, the future abhors Euclidean geometry and Arabian mathematics, and the arrow toward the obvious never hits the target.—A. M. SULLIVAN.

There are two kinds of voters. Those who will vote for your candidate and a lot of ignorant, prejudiced fools.—ERNEST BLEVINS.

SO VERY, VERY QUIET

BOHN-AIRE ROOM CONDITIONERS

"Whisper-quiet" and personalized control of room comfort are outstanding features of BOHN-AIRE Room Conditioners.

Mr. George Wenthe, one of the owners of the Effingham (Ill.) Holiday Inn Motel, says: "We had Bohn-Aire Room Conditioners installed in every guest room of our new motel. Bohn-Aire units are whisper-quiet and completely efficient; we are happy to endorse them for installations in which *exceptionally quiet operation* and *individual room control* are desirable features."

Extra slim! Extra compact! For concealed mounting (as above) or for exposed mounting in attractive beige enameled cabinets. In capacities from 200 to 1200 C.F.M.; ideally suited to apartments, motels, hotels, offices, hospitals, and similar structures. Available in 7 sizes for vertical mounting and 5 sizes for horizontal mounting, all with 3-speed push-button control.

SO QUIET Bohn-Aire SO EFFICIENT

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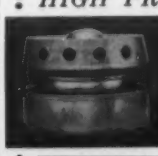

Walton HUMIDIFIERS

RESIDENTIAL—COMMERCIAL

27 MODELS FOR EVERY TYPE OF HEAT AND EVERY NEED

Walton LABORATORIES, INC.
1186 Grove Street
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TECH CENTER

by
FRANK J. VERSAGI

Internal Overload Protectors (2)

Because of the growing importance of internal overload protection, the NEWS invited manufacturers of such devices to discuss briefly their approach to motor protection and their products. This is another in a group of discussions obtained from such manufacturers.

"There has long been a need for a motor protector which is directly responsive to the internal temperature of the motor windings," offered S. F. Henderson, manager, AC motor development department, Westinghouse Electric Corp.

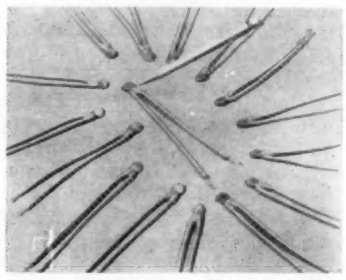

FIG.1 —A group of PTC Thermistors. These small static devices may be inserted in the motor windings.

"The function of the protector is to protect the motor windings from operation at temperatures that will shorten the insulation life. The device should be sufficiently accurate, reliable, and sensitive so as to perform the required function when the need exists and avoid nuisance type operations when the motor winding temperature is such as to permit operation.

"Consequently, there is a considerable interest in a temperature responsive electrical element embedded in the motor winding."

Westinghouse's approach to thermal protection is a simple static device called a *thermistor,* Fig. 1.

"This tamper-proof positive temperature (PTC) thermistor has a most unusual resistance-temperature characteristic," according to Henderson. "Below the design value of temperature the resistance is essentially constant, but at the design value of temperature the resistance increases ten fold or more during a few degrees of temperature increase."

The resistance - temperature response, Fig. 2, of the PTC thermistor is very much like that of a thermal switch. The constant low value of resistance over a wide range of low temperatures corresponds to a closed switch. At a definite higher temperature the resistance sharply increases, then corresponding to an open switch.

"This unique characteristic is used to provide an electrical control signal to indicate whether the temperature of the thermistor is above or below its characteristic switching value. This basic behavior pattern consistently repeats and is utilized to provide the desired intelligence to the motor control."

Each thermistor is placed in close contact with the stator winding, Fig. 3, and sealed in place with epoxy cement, prior to the stator varnish impregnation, "thus assuring the closest possible proximity to the source of heat," said Henderson.

Excessive heat is thus closely guarded against at the point of generation, "whether the cause be from sustained overload, reduced ventilation, single phasing, unbalanced voltage, low voltage, high voltage, blocked rotor, unusual duty cycle, etc.

"Maximum reliability is assured by keeping all make-or-break contacts of the electrical circuit *outside* of the motor or hermetic compressor enclosure," he concluded.

(To Be Continued)

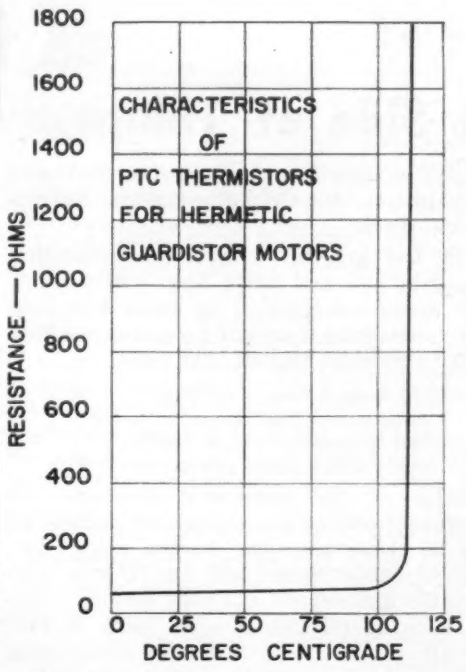

FIG. 2—The resistance-temperature characteristic of PTC thermistors used in hermetic "Guardistor" motors. The thermistor acts like a thermal switch with resistance low at normal temperatures and high at temperatures above permissable operating value.

FIG. 3—Installation of PTC thermistors in a "Guardistor" Motor winding.

HENRY VALVE CO.
CONTROLLING FLOW
SINCE 1914

DEMAND IS GREAT... EVERYONE IS BUYING
THESE EXTRA VALUE PRODUCTS

"DRI-VUE" Moisture-Liquid Indicators
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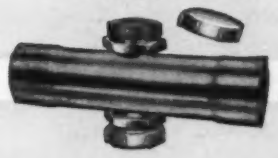
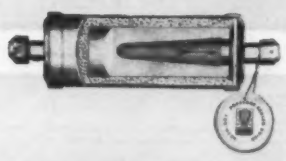
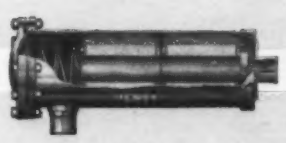


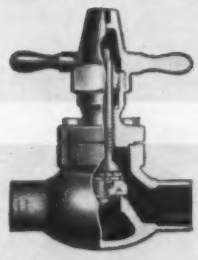
"DRI-COR" FILTER-DRIERS
Two Stage Drying; Molded Core and Granular Desiccant. Abso-dry Processed.



"DRI-COR" Cartridge DRIERS
Molded Filter Core and Granular Desiccant. Split Second Cartridge Installation.



SHUT-OFF VALVES
Packless and Packed with Flanged and Integral Connections. Wide Range of Sizes and Types.



Only Henry offers you this complete variety of types and sizes, from ¼" flare packless to 4⅛" O.D.S. packed Wing Cap valves, from 1 ton sealed type to 165 ton cartridge type filter-driers and ¼" flare single port to 2⅛" O.D.S. double port moisture indicators.

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Editorial

A Look at the Bright Side of Things

In the past few years, many people have found it relatively easy to find things to criticize in the air conditioning and refrigeration industry: criticism has been leveled at the conduct of the industry's affairs, both by individual companies and by the associations operating in these fields.

The NEWS has sometimes taken a part in this generally critical attitude. As of right now, however, we can see some light on the horizon, and we think it only fair to recount some of the brighter spots.

These fields have suffered all through its structure—from manufacturer down to the installing dealer-contractor, from a lack of profitability. Some of this stemmed from lack of judgment on the part of management, perhaps more of it came about through ignorance of many engaged in the business as to the need for proper pricing and for proper business methods to insure the right margin of profit.

It might be naive to say that all price cutters have now reformed, and that all of the individual businesses have become models of proper business operation. But we do know that through the educational efforts sponsored by individual manufacturers and associations, and through the desire of management personnel to learn more about good business methods, more people in the industry are becoming aware of the necessity for proper pricing policies and proper management methods.

The problems that beset the industry's engineering society may not be solved at present to the satisfaction of all concerned, yet it is reasonable to say that ASHRAE's general state of health and its promise for future contributions to the industry's progress look a lot brighter now than a year ago.

The conflict in dates in the two industry expositions, which caused headaches for both exhibitors and those who wished to reap the many benefits that come from attendance at industry shows, has seemingly been resolved by dates set in alternate years.

In a bold move, the ARI is taking its 1962 (Feb. 12-15) Show to the Far West, the area of the nation's greatest growth, and also an area of top sales growth in this industry's products in the last few years. Those members of the industry on the West Coast jealously guard their reputation of doing things in "a bigger and better way" and promise not only a dazzler of a Show, but also something special in the way of planned entertainment programs that will make up the "Air Conditioning and Refrigeration Week."

On the general subject of exhibiting one's products and know-how, which is always under questioning by some who consider themselves marketing experts, we kind of like the little rhyme that goes:

> "To have a thing is nothing,
> If you've not the chance to show it,
> And to know a thing is nothing,
> unless others know you know it."

Sales of the industry's products are never as good as they should be, and in the eyes of those who are on the firing line, they probably never will be. But a considerable amount of industry product continues to be purchased each year, in fact over-all it is a continually increasing amount. And prospects continue bright.

When an authority such as the Federal Housing Commissioner publicly states that before too long new homes without year-round air conditioning will be obsolete before they are occupied, and an automobile industry marketing expert concedes that an air conditioned home is more of a status symbol than a new auto, it would seem a must that the growth of home air conditioning must accelerate. While the needs of materials and machines for proper conditions continue to dominate the "reasons why" for installing air conditioning in industrial plants, more data continues to pile up to show that greater production efficiencies and gains can be realized if proper conditions are provided for industrial markets.

If the market for commercial refrigeration has leveled off—it did so at a high peak, and purveyors of the nation's foodstuffs have come to recognize that modern refrigeration equipment is a tool that can improve operating efficiencies as well as sales.

Finally, some segments of the air conditioning industry are starting to give indications that a big share of their job is a fight for the spending dollar, and the "Delaware" project that boosted sales of residential air conditioning in the Wilmington area is a splendid example of what can be done through a well conceived, hard-hitting promotional effort.

Let's hope that there will continue to be more individual and collective thinking put to work to see that the industry — which has a vital role in the nation's well being — continues to get a greater share of the monies spent for goods and services.

NEED PROOF OF PROPER EVACUATION

Cali-Daire Co.
Van Nuys, Calif.

Editor:

Your well written, articulate article and editorial on service procedures must surely have an upgrading effect on the industry. I'm afraid that, of necessity, these must be a continuing thing.

The two articles on Evacuation Procedures by Harold Saunders prompt me to offer a suggestion for better evacuation control.

We insist that a vacuum reading in microns be obtained on every job we install. However, we have no proof that the system has been properly leak tested or that a proper vacuum has been obtained.

We would like a circular chart recorder with a range about like the Airserco No. 8990 High Vacuum Gauge (20 mm to 20 microns). This recording chart could then become a part of the job file along with the regular check out sheet, and we would have proof to ourselves, the customer, and the equipment manufacturer that the proper vacuum was achieved and held for the required length of time.

(The Bristol Co. has a similar recorder but we feel it is too large to be used as a field instrument.)

It is our opinion that if such a recorder were available to the industry the number of burnouts due to improper evacuation would be materially reduced.

H. C. TROTH,
President

THE NEWS GOES HOLLYWOOD

Gentlemen —

When I asked my husband if he wanted to renew his subscription he said — "Are you kidding? I would like to send them an extra $10.00 for what I have learned from this magazine." — but — being his wife I'm not going to, but just his appreciation.

Renewal Order ACH&RN
9/25/61

Ralph W. Curtis
6341 Morella Ave.
No. Hollywood, Calif.
(Air Cond. Engr., 20th Century Fox Films)

A REGULAR PATENT READER SUGGESTS . . .

Refrigerating Specialties Co.
Chicago, Ill.

Editor:

What happened to your Patents section in the Sept. 25 issue? You merely published a group of consecutive patents only one of which is for refrigeration or heating.

We have always found this section to be very valuable with regard to patents in the refrigeration and heating field including refrigeration valves.

Non-pertinent patents only waste your valuable space. We hope you take steps to restore this section to its previous excellent editing and trust that this week's lapse is only temporary.

CHARLES C. HANSEN III

Your constructive criticism on our Patents Section is much appreciated. We have on occasion covered patents on some items (such as valves) which were not specifically designed for the industry's needs, but which we felt might be of some significance to those who were designing similar products for the industry. However, your point is well taken and we will attempt to eliminate that which would waste space in the issue or the reader's time.—Editor.

UH··"DEAR SON···I WAS DISTURBED THAT YOU DID NOT MAKE THE HONOR ROLL··I HOPE YOU APPRECIATE THE OPPORTUNITIES YOU HAVE···YOU MUST WORK HARD···AS WHAT YOU DO IN COLLEGE IS A FORERUNNER OF HOW YOU'LL MAKE OUT IN A BUSINESS CAREER!" AND THEN YOU CAN SIGN IT··"LOVE, DAD"!
LOOK WHO'S TELLING JUNIOR TO KEEP HIS SCHNOZZ TO THE SANDPAPER····
YEAH···BOSS-O HAD A HARD DAY···HE GOT IN AT ELEVEN···DICTATES ONE PARAGRAPH AND SCRAMS····
I LIKE THE ONES HE DICTATES TO THE KID ABOUT R.O.T.C.···WHEN THE OLD MAN WAS DRAFTED HE FAINTED···
AND "NEITHER A BORROWER NOR A LENDER BE," AS HE DIPS INTO PETTY CASH····
5-23
POLONIUS ADVISES JUNIOR ON A THING OR TWO····
THANX AND A TIP OF THE HATLO HAT TO HERMAN BRUNCH, WASHINGTON, D.C.

They'll Do It Every Time

by Jimmy Hatlo

AIR CONDITIONING HEATING & REFRIGERATION NEWS
F. M. COCKRELL, Founder

'The Conscience of the Industry'

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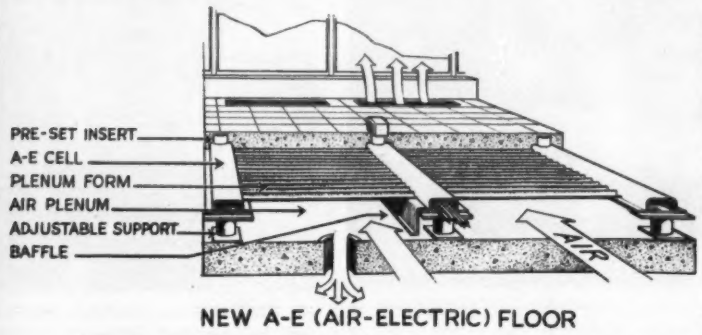
A-E Floor System Provides for Air Distribution and Electrical Services



NEW A-E (AIR-ELECTRIC) FLOOR

ST. LOUIS—Granco Steel Products Co. has developed and is now marketing a new floor system for building construction—called the "A-E (air-electric) Floor."

The system for underfloor distribution of conditioned air and electrical services may be used with any structural system in new construction, according to the company. It is also readily adaptable for modernizing older structures.

Paul K. Nichols, Granco general manager, said "Extensive tests and the first construction uses of the A-E Floor show that, by combining mechanical and electrical services in one simple compact floor system, architects and engineers have complete design flexibility to provide for the ever-increasing comfort and service demands of the tenants of modern buildings."

The A-E system basically consists of a floor supported by the main structural slab.

"This floor rests on adjustable steel supports creating an air space or plenum for conditioned air to be carried to floor and ceiling air diffusers," it was explained. "The plenum can be varied in height, is virtually unobstructed, and can be conveniently sub-divided with baffles to provide zoning of air.

"Within the floor, a network of cells at predetermined spacing carry wires for the various electrical and power circuits. Pre-set inserts are optional for connection to standard service floor fittings. Other standard electrical fittings such as header ducts, and junction boxes are usable with the system."

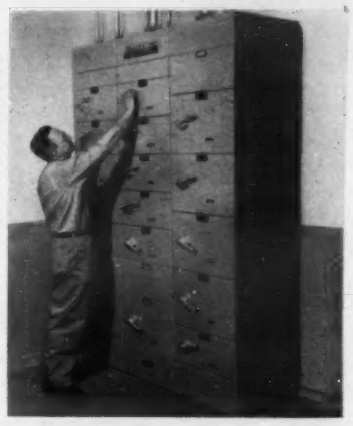
Some of the benefits which will be derived from this system are reduction in building height, absolute level finish floor, choice of high or low velocity air systems, wide choice of mechanical systems, more effective air distribution, and more electrical flexibility, Nichols said.

The A-E Floor has been installed in an addition to the Lemay Bank & Trust Co. in St. Louis, and is being installed in a new clothing store in Albuquerque, N. M., and a telephone service center in Detroit.

A-E Floor is also being used in the 28-story Michigan Consolidated Gas Co. building in Detroit's Civic Center. (Associated architect and engineer: Minoru Yamasaki — Smith Hinchmann & Grylls.)

Douglass H. May, formerly an application engineer with Carrier Corp., has been appointed product manager for A-E Floor.

Versatile Air Conditioning Control

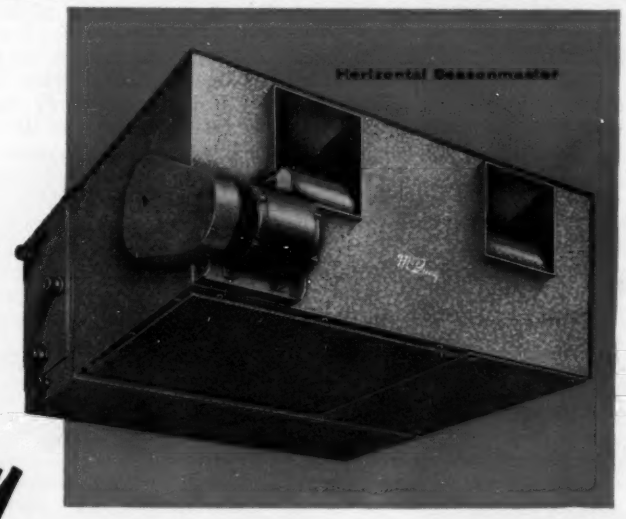


GROWING POPULARITY of motor control centers is evidenced by this modern three-section unit recently installed to provide a convenient and compact assembly of all electrical components needed to serve a new air conditioning system in a midwestern office building, according to Allis-Chalmers. Units can be added to these versatile centers to provide for changes in control requirements. Plug-in terminal blocks permit fast unit interchange and easy horizontal drawout for inspection and maintenance. The control centers are particularly effective where six or more starters and associated protective equipment are required. They can be used to regulate almost any type of low voltage load, including motors, pumps, compressor, and fan for the building's air conditioning system.

Nickel Is Mazingo's Field Application Engineer In No. Carolina

CHARLOTTE, N. C.—The appointment of Walter J. Nickel as field application engineer for the North Carolina operations of Mazingo's, Inc., has been announced by Ben McCoy, president.

Nickel will be responsible for both sales and installation of air conditioning, heating, and refrigeration equipment. He was formerly associated with Hussmann Refrigerator Co., St. Louis, as its field service engineer.



McQuay

SEASONMASTERS

NEW single and multi-zone central station air conditioning units

SAVE valuable SPACE

Compactness saves space, and McQuay proudly offers a new line of quality engineered central station air conditioning units that do just that. A new space saving design, available in both single zone draw through and multi zone, or double duct, blow through arrangements in low pressure (up to 3" s.p.) and medium pressure (3" to 5½" s.p.) makes the McQuay line the most complete and versatile in the industry. Thirteen single zone and eleven multi zone models are available. See the McQuay representative in or near your city, or write for catalog 560 to McQuay, Inc., 1607 Broadway N. E., Minneapolis 13, Minnesota.

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AIR CONDITIONING • HEATING • REFRIGERATION

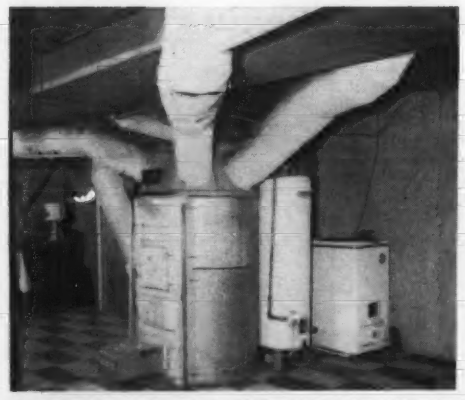
MAKE THE SEASONS COME TO YOU!

MIGHTY MITE

Makes Motor DRIVEN APPLIANCES SAFE!

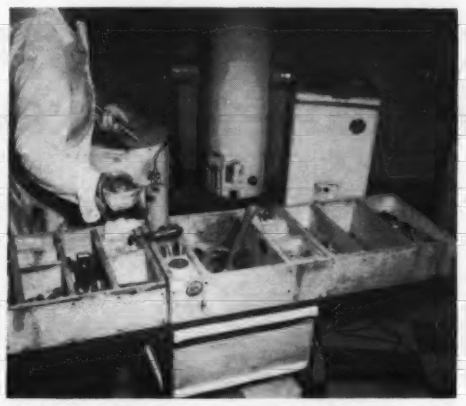
MIGHTY MITE MOTOR PROTECTORS

MECHANICAL INDUSTRIES PRODUCTION CO.
223 Ash Street Akron, Ohio



1. VIEW OF BASEMENT before installation with old gravity warm air furnace still in place. This equipment and ductwork were removed by the owner before the demonstration. New boiler was set in same location as furnace.

2. KEN AND DOUG Cornwall start demonstration by unloading equipment from their truck



3. HOME MADE TOOL KIT mounted on wheeled table kept all needed tools and fittings close at hand.

4. FIRST STEPS in installation was hoo ing up Purgetrol (bottom), circulatin pump, and zone control valves. Horizo tal pipe with valves connected was pr assembled and only soldered in her

3-Man Crew Installs Hydronics Heating System In 4 Hours To Prove It Can Be Competitive

By George M. Hanning

DETROIT—To prove that the hydronics heating contractor can realistically compete for the home modernization market, a demonstration conversion installation was held here recently for contractors and the press.

The demonstration was sponsored jointly by the Hydronic Heating & Cooling Council of Detroit, A. O. Smith Corp., Slant /Fin Radiator Corp., and Taco Heaters, Inc.

During the demonstration, a three-man crew from Walter Corwall & Sons, plumbing and heating contractor, took just short of four hours to install a modern hydronics system in a 12-year-old home from which a gravity warm air system had been removed.

Estimated cost of the hydronics equipment, installation, and guarantees was $1,100, according to the council. Operating costs are expected to be about $125 per year, based on the use of gas to heat the boiler. Anticipated savings over a warm air installation are claimed to be approximately twenty per cent.

The home is a 1½-story asphalt shingle, six-room structure, with one bedroom spanning the second floor. Calculated heat loss was 60,000 Btuh. Only insulation is in the ceiling and under the roof over the upstairs bedroom.

How System Works

New heating system pumps 190°F water through continuous loops of ¾-in. copper pipe to the ground floor, the second floor, and to each end of the basement. Basement loops and upstairs loops are controlled separately by Taco zone control valves.

Heat is distributed in each room through Slant/Fin fine line baseboard in standard sections mounted along outside walls. Cool air at floor level is induced over the fin coils, heated, and released upward into the room. Adjustable louvers along the top of the baseboard control flow of air.

Baseboard sections cover the cold air returns from the gravity system. Openings were filled in with drywall. Supply registers on inside walls were left intact.

Heart of the system is a small A. O. Smith 110,000 Btu input boiler designed for a maximum heat loss load of 79,200 Btu. Only about 1½ gals. of water flow through the continuous coils of tightly wound copper tubing that surrounds the burner flame.

Burner flame is modulated by a Minneapolis-Honeywell "MagicHeet" control that provides near continuous hot water circulation. A "Modusnap" gas valve is installed in the gas line between the pilot take-off and the burner, raising and lowering the flame in accordance with heating requirements.

All products required for the installation were supplied by W. T. Andrew Co., Detroit wholesaler.

Highlights of the installation are shown in the accompanying pictures. Actually, installation of baseboards and of boiler and basement piping were going on simultaneously. Two men worked upstairs on the baseboards. One worked on the basement piping. When the upstairs men finished their work, they helped out in the basement.

Promoters of the demonstration claimed in advance that the installation would be finished in three hours after the equipment was unloaded from the truck.

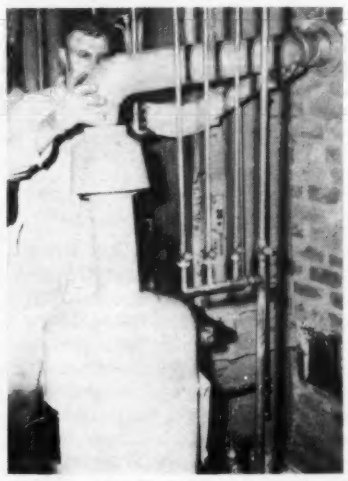
That goal was not reached. It was pointed out that the men worked under adverse conditions with onlookers and photographers jamming the house and interfering with movement. On the other hand, the crew took no coffee or smoke breaks and worked steadily from start to finish.

According to Gil Ham, executive secretary of the HHCC, local publicity on the demonstration conversion brought four leads and an immediate sale to Cornwall and several leads to other hydronics contractors who had not actively participated in the promotion.

9. MEANWHILE UPSTAIRS, furniture w side wall and drop cloth laid to cover tion of baseboard radiation. Old supp left as they were, with duct openin

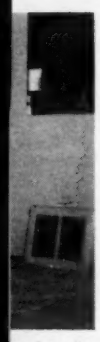
5. LOOPS OF ¾-in. copper pipe are fastened to joists by teflon lined pipe supports. Electric screwdriver speeds the job.

6. MAGICHEET control shown installed in gas line with sensing element in boiler outlet. Direct liquid expansion and contraction in control modulates gas flame to maintain 190° water temperature.



7. ONE OF LAST STEPS in installation was running vent pipe from boiler to chimney. Pipe was cut to size on job with electric hand saw.

8. RIGHT: Officials gathered round completed boiler installation are: Standing (l. to r.) Herb Steiner, Slant/Fin Radiator Corp.; Tom Osberger, T. C. Osberger Co.; Jim Jamison, Taco Heaters, Inc.; Bud Roye, A. O. Smith Corp.; Gordon Andrew, W. T. Andrew Co.; and Ken Cornwall, Cornwall & Sons. Kneeling (l. to r.): G. Foley, A. O. Smith Corp. and Ed Behm, Michigan Consolidated Gas Co.



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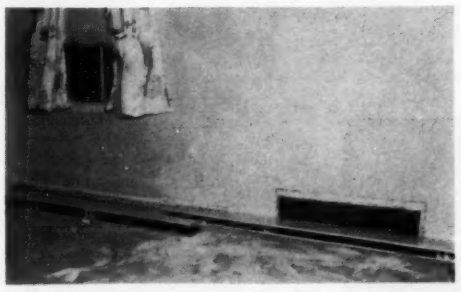

10. STANDARD sections of baseboard were laid out for installation. Note old cold air return at right which will be completely covered by new baseboard unit. To simplify installation, necessary flexible connectors were sweated to the end of the heating elements in the contractor's shop.

11. LEFT: SLANT/FIN's nailing …ool, the "T-Shot" was employed …o quickly nail the baseboard units …o the wall. The tool is a two-…iece instrument, a tapered steel …ube and a drive shaft which slides …nto the tube and transmits the …orce of the hammer blows, driving the nail before it.

12. RIGHT: ONLY PLACE where standard baseboard sections had to be cut was the bathroom. Otherwise, mechanic could have left his hacksaw in the shop. Individually packaged, pre-cut units arrived at the site factory-assembled and in color coded cartons. Each unit contained damper, splice plates, expansion clips, brackets, and damper joints.

13. FOUR HOURS after truck arrived at their door, Mr. and Mrs. Edward Britt proudly examine their new hydronics heating system. Britt was attracted to hydronics from the favorable experience of his brother with a similar system.

Your **WATER** CONDITIONING IS **OK** WITH **S-K** PREVENTIVE MAINTENANCE

Prevent clogging deposits . . . caused by scale and corrosion . . . on your water-using equipment. With Stiles-Karlsonite products for *assured preventive maintenance* . . . your water is always crystal clear . . . tasteless . . . non-toxic.

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GENERAL ELECTRIC NOW OFFERS SEVEN DIFFERENT SIZES OF CONTACTORS AND STARTERS...RATED TO 600 VOLTS

For Air Conditioning and Refrigeration. General Electric's new 20-, 25-, and 75-amp contactors and starters combine with present 30-, 40-, 50-, and 60-amp units to bring you a complete line of economical controls for incorporation into all your residential, commercial, and industrial air conditioning and refrigeration equipment.

For Resistance Heating. These same General Electric controls have special current ratings for resistance heating loads—each will carry its maximum amp rating at all voltages, allowing you greater performance from the contactors and starters.

And with all seven ratings, you get a complete line of easy-to-install, compact controls with lower power requirements . . . yet fully rated up to 600 volts. Straight-through wiring is standard on all ratings.

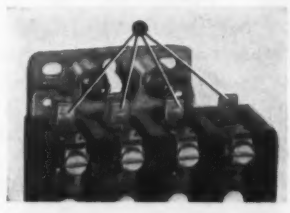
For the complete story on this full line of air conditioning, refrigeration, and heating controls, contact your local G-E sales engineer today. Or write to Section 811-27, General Electric Co., Schenectady, New York for publication GEA-7316A.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Durable Cast Aluminum Baseplate on 20- through 40-amp ratings has keyhole slot and two holes at top and three slots at bottom to provide interchangeable mounting.

Pressure-type Terminals on 30-through 75-amp sizes speed hook-up of line and load terminals; screw-type on 20- and 25-amp ratings accept spade and ring terminals or bare wire.



Accessory Connections. Optional quick-connect single- and double-blade terminals on 30- and 40-amp designs permit accessory connections such as condenser fan motors, control transformers, and coils.

How To Check Cap Tubes (2)

By Henry Ehrens, President,
Sealed Unit Parts Co., Inc., New York City

EDITOR'S NOTE: So much interest was aroused by the author's recent seven-part series on Capillary Tube Systems, which appeared in the NEWS from April 24 through June 5, that he was invited to contribute more thoughts on the subject. Ehrens has had many years of experience in the wholesale repair and rebuilding of hermetic units and systems as well as manufacturing replacement parts and components.

Let's go back to the case in point, the service engineer's enigma, Waterloo, and brain buster — "the restricted cap tube." I seriously think that the time has come for manufacturers of commercial equipment to stop kidding themselves and face the fact that cap tubes do become defective and that it is necessary to change them in the field.

Designing a self-contained refrigerated chest or upright fixture so that a service engineer can change the cap tube without breaking the moisture seals of the cabinet shouldn't be too difficult. When you design the equipment that is practical to service, you also make it easier for the contractor, service engineer, and customer as well.

It really is heartbreaking to watch a service engineer tear apart an entire freezer cabinet, remove the liner just to get at the connecting joint where the cap tube enters the evaporator.

It's probably true that more than 90% of all domestic refrigerators can live out their usefulness and be traded in or junked with the cap tube still in perfect condition—even after 15 years of satisfactory operation. However, it would be foolish to assume that anything near these conditions can ever exist in commercial equipment. The abuses that these units take makes one wonder how they even last a full year.

The first mistake that commercial designers made was to engineer a freezer or refrigerator with doors. Some manufacturers even went to the trouble of making a survey as to what would be considered normal door openings, and rated the evaporator and unit upon this type of usage load.

What they should have done was to make a survey of how many times during the day someone bothered to close the doors. Well, anyway, after the complaints of burnt out units was piled all the way up, they decided to engineer the equipment without doors. This started the automatic defrost ideas, what with timers, heat banks, heaters, reversing valves, re-expansion coils, etc., and one other small item; the unit runs almost continuously during the store's open hours. One more important item still plagues the manufacturer; an automatic condenser cleaner.

Have you ever noticed the condenser of a unit in your local grocery or candy store? Were you ever able to see any suggestion of the original fins? You know, every time I see one of those clogged condensers, I can hardly wait till I'm served in order to get out. Even after I leave, the knocking of the compressor still rings in my ears. I guess I'm just sensitive to these common abuses as I know what's taking place in the unit: a slow, torturous breakdown.

Well, there you have the makings of capillary problems; continuous running units and clogged condensers.

What Happens To System With Restricted Cap Tube

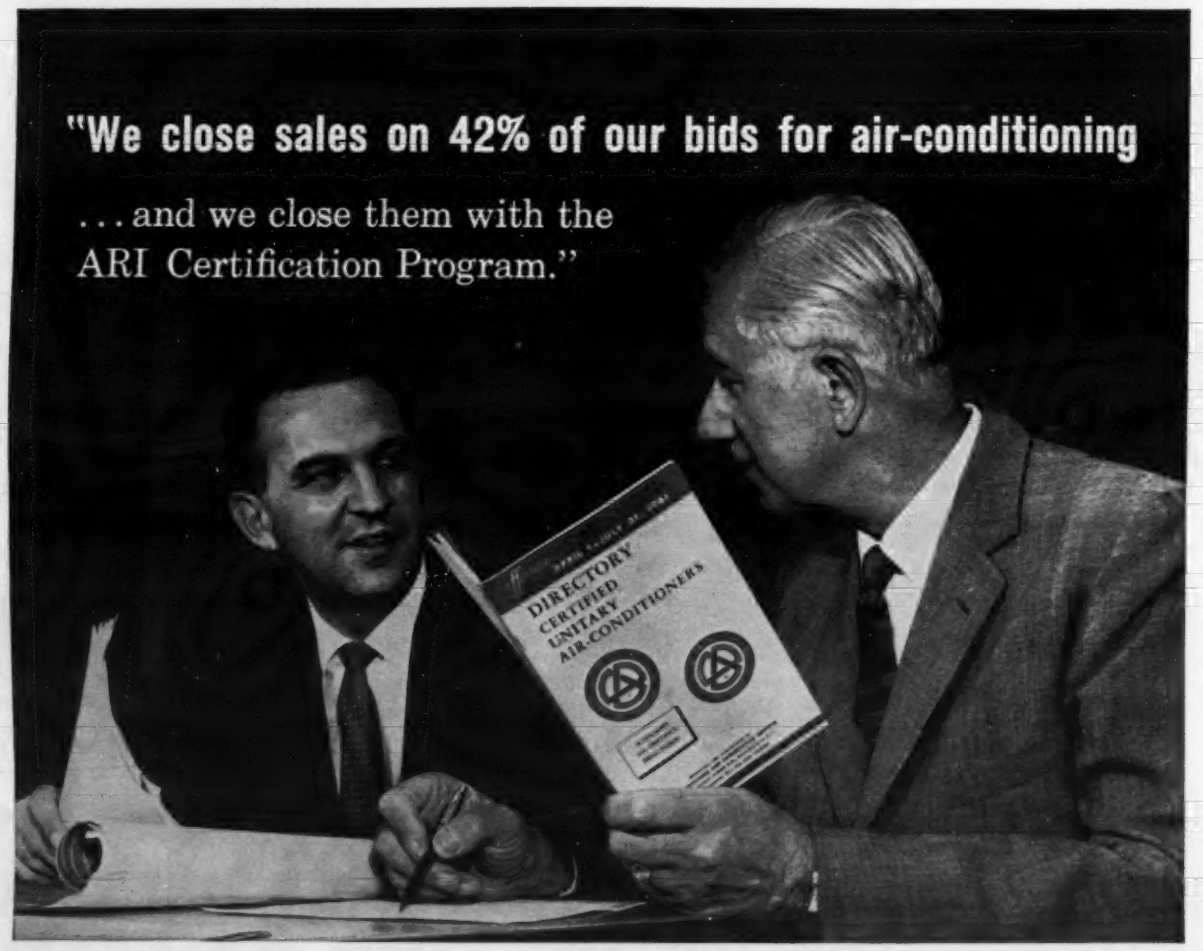
Let's go back to our original symtoms of a restricted cap tube and see what actually happens in the system. To begin with, in a normal operating unit the entire condenser is filled with vapor. Most condensers are so designed that liquefaction of the refrigerant takes place in the cap tube. Soldering the cap tube to the suction line serves a dual purpose; first, it rapidly condenses the gas to liquid, and second, the cold suction line subcools the liquid which increases the over-all efficiency of the unit.

Now let us suppose that the cap tube is only slightly restricted, so that only ¾ of the evaporator is frosted. The shortage of refrigerant from the evaporator is now in the bottom of the condenser and has accumulated in the bottom 5 tubes. If the condenser has a total of 20 tubes, it simply means that total efficiency of the condenser has been reduced by 25%.

Now since the compressor was designed to maintain a normal back pressure with a fully frosted evaporator, and now only ¾ of the evaporator is working, this reduced load to the compressor results in a lower than normal back pressure reading. And since the condenser has lost 25% of its efficiency, the head pressure would be higher than normal; this would also reflect on the ammeter, higher than normal.

These are basic symptoms and the more the cap tube is restricted, the more exaggerated the gauge and meter readings will be.

Let us suppose that you're the



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"First we advise our prospect to forget about 'horsepower' and 'amperes'. We explain that the *industry-approved* performance standard is based on Btuh. We tell him his best buy will be the unit that gives him the most Btuh for each dollar he spends.

"Then we use the ARI Directory to back up our performance claims for the equipment specified in our bid. We explain how the Certification Program works and point out that the ratings in the Directory are subject to checking at any time by an independent testing laboratory. We emphasize the severity of these tests and how they assure him of satisfactory performance and minimum maintenance expense. The ARI consumer folder, 'How to Buy Central Air Conditioning' is a real help in getting this story across.

"Our firm has a reputation for integrity, but we have profited from the *extra* confidence inspired by the impartial authority of the industry-approved ARI Certification Program. It is often the decisive factor in closing a sale."

Free copies of the ARI Directory and "How to Buy Central Air Conditioning" are yours for the asking. Write to:

AIR-CONDITIONING & REFRIGERATION INSTITUTE

Department A-1013, 1346 Connecticut Avenue, N.W., Washington 6, D.C.

**Mr. George Rosen is President and General Manager of R & M Air-Conditioning Co., Inc. of Washington, D.C.*

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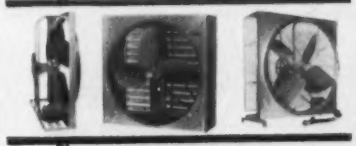

Precision-engineered by
PHIL RICH FAN MFG. CO., INC.
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2900 Caroline St.
HOUSTON 4, TEXAS

service engineer and you have a restricted cap tube in a chest type freezer. In fact, you have torn the entire freezer apart in the grocery store and have already changed the cap tube. You would like to test the system before you put the cabinet together again, but in order to give it the proper test you might as well put the insulation back and solder the cap tube to the suction line.

Same Problem All Over Again

Now, let's go one step farther and you find that you're getting the same symptoms again: low back pressure, high head pressure, and high amperage. The more you charge the system, the worse the conditions get. I bet I know the thoughts that will run through your mind. First you'll wish that you stayed in bed this morning; then you'll blame the service manager for giving you the service call; and then the following:

Did I diagnose the original cap tube correctly?

Maybe there is a restriction in the condenser.

I must have installed the wrong cap tube.

I bet one of my solder joints is restricting the cap tube.

I wonder if that sharp bend I made is causing this condition.

Maybe I put in R-22 instead of R-12.

Is the new cap tube defective?

I've already spent two hours on this call and I have four more calls to make.

If I spend any more time on this call, my boss will kill me.

If I tear apart the cabinet again, the storekeeper will kill me.

Gee, it must be hot in here; I'm sweating like crazy.

E. B. Tester

I bet everyone who has changed cap tubes has gone through this experience. This used to happen in our shop at least once a day. I honestly used to think that some of my better shop men would go berzerk. So I decided that in order to protect the sanity of my men, as well as my own, a method would be devised whereby a cap tube could be tested BEFORE you charged the system; and that is how the E. B. Tester had its inception five years ago.

Of all the problems connected with cap tube hermetic systems one problem we haven't got, and that is knowing whether the cap tube will work after the unit is charged with refrigerant.

Of course, there are many other problems with hermetic systems, one in particular, burn-outs.

You know that there is a misconception in the refrigeration and air conditioning industry with regards to hermetic burn-outs. The consensus is that when the burn-out has been repaired or replaced with a new one, the entire job is done.

Replacement of Hermetic Is Only 30% of Solution Following Burnout

Anyone involved in hermetic rebuilding, manufacturers or independent rebuilders, knows that the replacement of the hermetic unit is only 30% of the total repairs that remain to be done; 70% of the work is yet to be performed by the service engineer in the field.

He has to flush the evaporator and condenser and the connecting lines with an approved solvent; install a new liquid line drier and on some severe burn-outs, a suction line drier.

He must determine what caused the original hermetic to burn out and correct the condition in order to prevent the replacement from burning out again. The service engineer must properly evacuate the system and charge it with the correct amount of refrigerant; he must also check for voltage drop on starting and for proper heat exchange at the condenser.

Before leaving the job he must check for leaks, running back pressure, head pressures, amperage, and pull-down time. He must also check the cut-in and cut-out temperatures, and, most important of all, he must check out the overload devices.

A good service engineer will disconnect the starting circuit from a single phase system to see if the overload will cut out in a reasonable length of time. This puts the unit in a similar condition if the starting capacitor should open or if the starting points failed in the relay.

He would also remove one fuse in a three-phase system to see if the heater strips or circuit breakers really work on single phasing. This is the type of work that MUST be done if the replacement unit is to last for any length of time.

Name Grazen President, General Mgr. Sterling Electric Motors

LOS ANGELES — Alfred E. Grazen has been appointed president and general manager of Sterling Electric Motors, Inc. here, a subsidiary of Hathaway Instruments, Inc. of Denver.

A. E. Grazen

Grazen was previously executive vice president of Platecraft of America and partner in Emco Industries. These Buffalo corporations are engaged in development of special products and materials in the electro-chemical field.

Sterling Electric Motors is a manufacturer of Lube-Free variable speed drives, gear motors, and AC motors for all industry.

WITT LOW TEMP. Defrostair COIL WITH EXCLUSIVE PATENTED Automatic Electric Defrost System

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DEFROSTS AUTOMATICALLY

FOR LOW TEMPERATURE ROOMS, FOOD STORAGE, FOOD FREEZING, ICE CREAM STORAGE, INDUSTRIAL LOW TEMP. APPLICATIONS.

Witt exclusive Defrostair patented Heat Trap coil requires only a low cost single pole, double throw time clock for complete automatic defrosting. Easy low cost installation. Requires no re-evaporation or special plumbing. Completely automatic. Available in 21 models ranging in BTU capacities from 1400 to 44,100 at 10°T.D. Write today for complete Witt Catalog.

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NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

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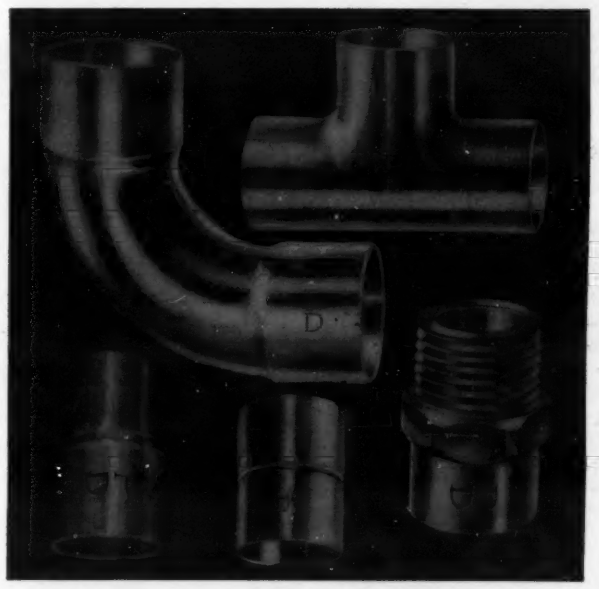
A complete line of Copper Refrigeration and ACR Tube, and Wrot Fittings from one Source!



1 NEW WROT SOLDER-TYPE FITTINGS. Phelps Dodge has added a wide range of fittings in sizes from ⅛-inch to 6 inches. All fittings are protectively packaged for factory-clean delivery.

2 COLOR-CODED ACR TUBE WITH O.D. MARKINGS. Phelps Dodge ACR tube is specially cleaned for refrigeration use. Extra-long coded end caps are your assurance of factory-clean tube at job site. Tube is color-coded for fast identification and marked with outside dimension.

3 NEW P-D PAK CARTON. Reel-type design of convenient new carton allows refrigeration tube to be rolled or paid out quickly on the job. Color-coded tape seals carton for protection, yet opens easily.

Quality tube and fittings sold the quality way—through authorized refrigeration wholesalers!

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P D MINE TO MARKET

RACCA of Chicago Institutes Improved Service Training With Cooperation of Trade School, Manufacturers

SIGNING contract for the 1961-62 term of the RACCA of Chicago Servicemen's Training School are seated, left to right: Guido F. Restagno, chairman, RACCA school committee; Harry Lebeson, president of Allied School of Mechanical Trades, Inc.; and Daniel M. Brown, president of RACCA of Chicago. Standing, left to right—Members of the RACCA school committee: Myer S. Axelrod, W. J. Monkerud, R. B. English. Two remaining members of the servicemen's training committee not shown in this photo are: W. L. Long and W. J. Tebeau.

* * *

CHICAGO—The Refrigeration & Air Conditioning Contractors Association of Chicago has announced the completion of plans for its new Servicemen's Training Program.

Classes started Oct. 2 at the Allied School of Mechanical Trades, Inc., 1338 South Michigan Ave.

"In the past, RACCA of Chicago recognized the pressing need for adequately trained refrigeration, heating, and air conditioning servicemen by instituting and operating a school, which was started in September of 1954," is was pointed out.

"Although the original program succeeded in its objective of turning out 500 well-trained and qualified servicemen, it was felt that great improvements in the program could be made based on experiences of its first few years of operation.

"Approximately ten months ago plans were formulated by the association's Servicemen's Training Committee, headed by Guido F. Restagno, for the development of a new physical facility for the school, as well as modification of the curriculum.

"With the help of his committee—M. S. Axelrod, R. B. English, W. L. Long, W. J. Monkerud, and W. J. Tebeau—these plans culminated in the conclusion of an agreement between RACCA of Chicago and the Allied School of Mechanical Trades, under which a portion of the Allied trade school facility on Michigan Ave. would be set aside for the incorporation of mechanical equipment furnished by RACCA of Chicago for training purposes.

"In addition, the agreement calls for Allied school to cooperate in furnishing instruction personnel and other needs.

"Nearly 100 manufacturers and suppliers of refrigeration, air conditioning, heating, and ventilating equipment have enthusiastically endorsed the program by offers to furnish for use at the Michigan Ave. facility, equipment of all types for the training of servicemen."

Included will be full-scale operating compressors, self-contained air conditioners, water chillers, cooling towers, air-cooled condensers, boilers, oil and gas burners, and heat pumps, as well as elaborate devices specifically designed for training purposes in this field.

The curriculum includes a basic course in which training will be given in the fundamentals of heat transfer, and shop and field practices. A second course will cover packaged equipment.

A third course is offered which includes the elements of dry and wet heating systems, as well as heating controls. A fourth course is also being offered, which is essentially a program in advanced trouble shooting.

"Throughout the construction industry it has been recognized that one of the limitations of elaborate mechanical heating and cooling plants has been in the availability of well-trained servicemen," the association noted.

The present program is specifically designed to overcome this shortcoming.

F. W. Muller Elected President of NIMA

NEW YORK CITY—F. W. Muller, vice president of the Gustin-Bacon Mfg. Co., has been elected president of the National Insulation Manufacturers Assn.

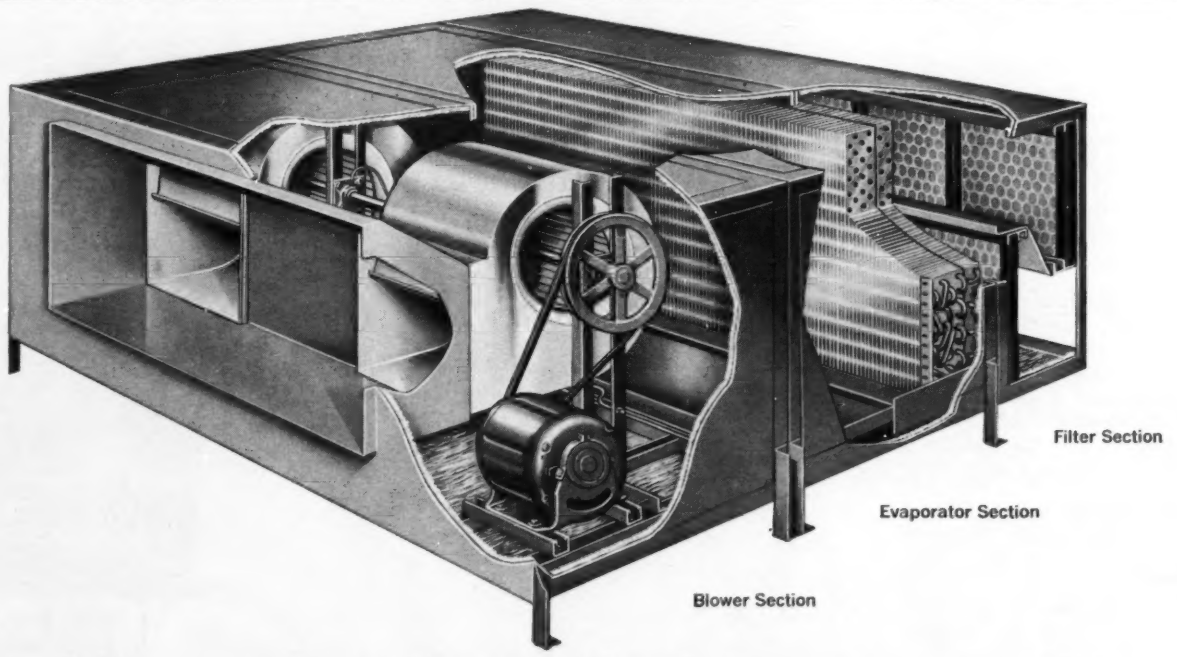
M. W. Burleson, vice president of the Johns-Manville Sales Corp., was re-elected as vice president of NIMA. Thomas J. Walters, manager of the industrial insulation division of the Ruberoid Co., is the new treasurer.

NIMA members are manufacturers of inorganic thermal insulations covering the full temperature range. John M. Barnhart is the executive secretary, with offices at 441 Lexington Ave., New York 17.

Hamilton Humidity, Inc. Names Advertising Agency

CHICAGO—Stern, Walters & Simmons, Inc., has been named to handle the advertising of Hamilton Humidity, Inc., of Chicago, creator of "Humid-Aire" portable and furnace humidifiers, it was announced by B. Shaffer, executive vice president.

The recently-organized company will manufacture a new home humidifier invented by Bill Hamilton, Chicago TV personality, who is treasurer of the new company, the announcement said.



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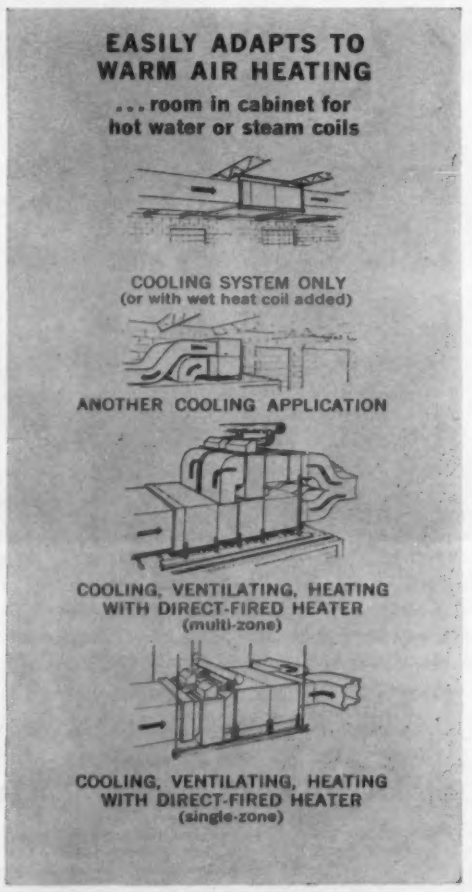
WEATHER-PROOFED AND INSULATED FOR OUTDOOR INSTALLATION

Here's *real* flexibility for commercial application! Three compact sections that fit together for up, down or horizontal air flow . . . for cooling alone, or in combination with heating (either direct-fired or wet system). Evaporator section features unique dual refrigerant circuit that gives latent capacity control without expensive by-pass ducts or complicated mechanisms. Coil face designed for minimum resistance and lower bhp. Outlet of blower section is constructed to permit ducting without additional transitions . . . and all servicing can be done from one side. For complete information, write your nearest Lennox factory or LENNOX, 413 S. 12th St., Marshalltown, Iowa.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(multi-zone)
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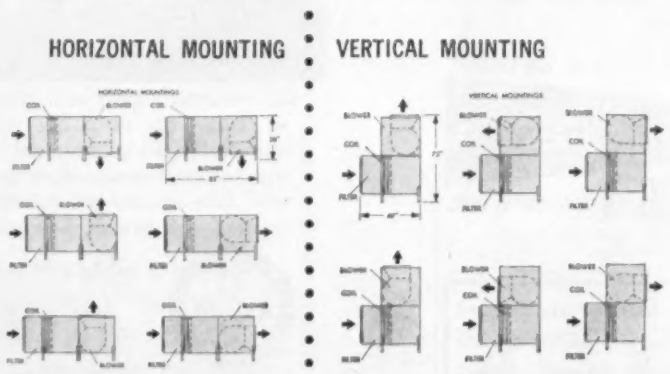
(single-zone)



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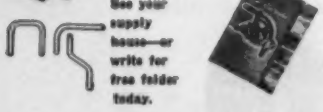
Smoothly Bends any pipe or Tubing ⅜"-1⅛" O. D.

• Just a twist of the wrist assures perfect, even bends — right angle, any angle, U and offset. Save enough on ONE job to pay for your HANDY BENDER.



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Current Literature

Drip-Proof Motors

DAYTON—New Bulletin 200 describing its line of open drip-proof fractional-horsepower a-c motors is announced by The Leland Ohio Electric Co., a subsidiary of Howell Electric Motors Co., 1501 Webster St., Dayton 1, Ohio.

Motors range from 1/6 through 1 hp for standard voltages, frequencies and speeds, continuous and intermittent duty.

The bulletin describes single-phase motors for driving such machines as air conditioning units, compressors, pumps, blowers, coolers, and circulators — with starting torques ranging from 250% to 350% of full load torque. Single-phase motors are available with thermal overload protection as an optional feature.

Polyphase squirrel cage motors described include NEMA Design B (normal torque) for driving blowers, fans, centrifugal pumps, drilling machines, machine tools and compressors that start unloaded; Design C (high torque) for compressors that start under load: stokers, etc.; Design D (high torque) for intermittent shock or hard-to-start loads.

Cooling Controls

VALLEY STREAM, N. Y.—A 12-page pamphlet on air conditioning controls used on domestic and commercial installations has been prepared by Sid Harvey, Inc., 100 E. Mineola Ave. here.

The pamphlet explains the functions, specifications, and lists the trade price of heating-cooling controls such as plain and clock thermostats and subbases, heavy duty airswitch, control centers, single and multiple zone control packages, damper motors, blades and linkage. It also lists residential electronic air cleaners and a condensate disposal pump.

Capacitors

NEW BEDFORD, Mass. — A new, 16-page catalog of Aerovox motor-run, motor-start capacitors is now available from the Aerovox Corp. Catalog MS61-10 contains complete listings of the expanded air conditioner and refrigeration lines of AC capacitors. Information covering capacities and physical dimensions are shown for all types.

Four pages of engineering data are included, in addition to a section covering the Aerovox capacitor selector and the Aerovox emergency capacitor. Hardware and terminal variations are illustrated for quick reference.

Fire Codes

BOSTON—A new and revised seven-volume edition of the National Fire Codes has been published by the National Fire Protection Assn.

These 1961-62 codes incorporate 48 fire protection standards adopted by the association this year plus 138 other current NFPA standards, according to George Tryan, technical secretary of the association.

Material in this authoritative reference work is divided into seven major categories covering flammable liquids and gases; combustible solids, dusts, chemicals and explosives; building construction and equipment; fixed extinguishing equipment; electrical; transportation; and mobile fire equipment, organization and management.

The National Fire Codes ($7 per volume, $40 for the set of 7 volumes) are available from the Publications Dept., National Fire Protection Assn., 60 Batterymarch St., Boston 10, Mass.

Refrigerant Piping

WASHINGTON, D. C.—"Refrigerant Piping Data," a 62-page book designed to serve as a guide for the proper sizing of refrigerant piping for the common types of refrigerants, has been published by the Air-Conditioning & Refrigeration Institute, 1346 Connecticut Ave., N.W., Washington 6, D. C. The book is available from ARI at $3 per copy.

In presenting the data included in the book, which includes data for Refrigerant-12, Refrigerant-22, and Refrigerant-717 (ammonia), ARI points out that "since each job has its own problems and peculiarities, and must be individually designed, this booklet should be used by the engineer primarily as a guide."

Information presented includes tabular and chart data not available elsewhere, supplements the ready-reference information with discussions, with suitable references, of the basis for refrigerant piping design including instructions, with worked-out examples for application of the tables and charts, it was pointed out in the announcement.

Leak Detectors

SCHENECTADY, N. Y. — "Type H Leak Detectors"—General Electric Bulletin GEA-6817A, eight pages—describes the company's Type H line of portable, halogen sensitive, electronic leak detectors for industry, research, and defense applications.

"All leak detectors discussed are sensitive enough to precisely locate pressure and vacuum leaks as small as 1/100 cu in./day," it was pointed out. They include General Service Leak Detector, Type H-6, for air conditioning and refrigeration field service.

Hydronics

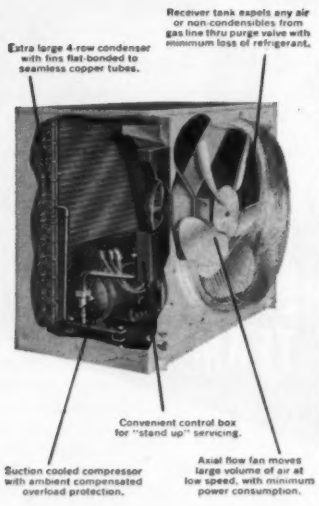
DUNKIRK, N. Y.—Two new catalogs (LX 661 and KB 761) covering Dunkirk "Blue Circle" oil-fired 13-in. hot water boilers and "Kiltie" baseboard radiation are available by writing Dunkirk Radiator Corp. here.

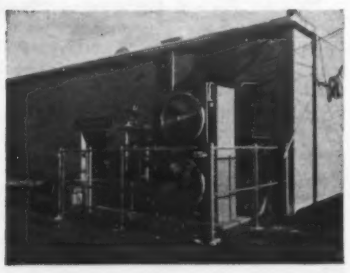
The 13-in. oil-fired line of "Lex-Pak" factory assembled packaged boilers as well as Lexington basic boiler-burner units include the new four-section size giving a complete range of I-B-R ratings from 98,000 to 180,000 Btuh, it was stated. The Kiltie baseboard radiation line covers all I-B-R hot water ratings at standard flow rates of 500 lbs per hour.

To obtain any of the literature items described on this page, write to the firm mentioned in the story at the address supplied.

Lennox air-cooled condensing unit sub-cools refrigerant for greater output

New condensing unit has a Btuh capacity virtually identical to costlier water cooled units of comparable hp. This is because new Lennox coil circuiting sub-cools refrigerant, and increased air volume provides more cooling per watt of power input. Range of 110,000 to 360,000 Btuh at 95° outdoor temperature.


Receiver tank expels any air or non-condensibles from gas line thru purge valve with minimum loss of refrigerant.
Extra large 4-row condenser with fins flat-bonded to seamless copper tubes.
Convenient control box for "stand up" servicing.
Suction cooled compressor with ambient compensated overload protection.
Axial flow fan moves large volume of air at low speed, with minimum power consumption.



Condenser units may be stacked as desired. Completely weatherproofed cabinet construction.

Don't be satisfied with less than

LENNOX

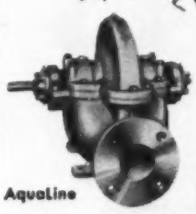
HEATS, COOLS, TREATS AND MOVES AIR

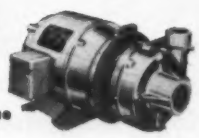
LENNOX INDUSTRIES INC., EST. 1895 — MARSHALLTOWN, IA.; COLUMBUS, O.; SYRACUSE, N.Y.; DECATUR, GA.; FT. WORTH, TEX.; SALT LAKE CITY, UT.; LOS ANGELES, CALIF. LENNOX INDUSTRIES (CANADA) LTD. — TORONTO, MONTREAL, CALGARY, VANCOUVER, WINNIPEG.

THESE QUALITY PUMPS CUT COSTLY SERVICE CALLS

PEERLESS PUMPS

PEERLESS END SUCTION AND SIDE SUCTION AIR CONDITIONING PUMPS COST LESS—LAST LONGER





PEERLESS AQUALINE® Pumps are available in sizes to 8-inches. Capacities to 2600 gpm, heads to 280 feet. Temperatures to 250°F. Horizontal split case design allows quick inspection without disturbing piping.

PEERLESS FLUIDYNE® Pumps are compact end-suction design. Redi-Packed in 22 sizes from 1 x 2 x 6 to 2½ x 3 x 10, for immediate shipment. Heads to 230 feet, capacities to 300 gpm, motors from 1 to 15 hp.

If there is a key word to describe Peerless Pumps, that word is QUALITY. You'll find it in the way the pumps are designed. You'll find it in the way the pumps are made. And you'll find it most apparent in the way these pumps operate. Remarkably long trouble-free operating records are routine with these better-made pumps.

But QUALITY is just the start of a long list of important features that recommend the Peerless AquaLine and Fluidyne line of pumps for your water handling jobs. There's immediate availability from ready-to-ship stocks. Complete hydraulic coverage for every type of application. Compact streamlined design that gives you space-saving good-looking layouts. And fast, on-time service from a network of warehouses and field offices.

ATTENTION DEALERS: A limited number of Peerless AquaLine and Fluidyne pump dealerships are available. Please write for complete information.

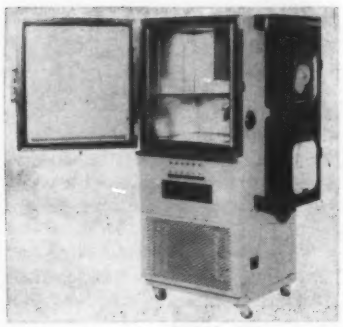
Putting Ideas to Work

fmc

Peerless Pump Hydrodynamics Division

PEERLESS PUMP—HYDRODYNAMICS DIVISION, FOOD MACHINERY AND CHEMICAL CORP.
2005 Northwestern Avenue, Indianapolis 8, Indiana
Gentlemen: Please send me immediately:
☐ Bulletin B-2319 on Peerless Fluidyne Pumps.
☐ Bulletin B-2100 on Peerless Aqualine Pumps.
☐ Name and address of nearest Peerless Dealer.

Name _____
Address _____
City _____
State _____



Low Price Test Unit Offers 5.1 Cu Ft

● A new temperature-humidity environmental test unit providing test space of 5.1 cu ft in a compact cabinet, has been added to the standard line of Tenney Engineering Inc., Dept. AH&RN, 1090 Springfield Rd., Union, N. J.

The unit, (the Tenney-Mite TH) model TMTH0200, is designed for MIL-E-5272C, MIL-STD-202B, and MIL-STD-170 testing. It provides temperatures from 0° to 200°F and relative humidity from 20% to 90% in the dry bulb range, limited only by 35° to 185° dew point.

Applications include corrosion testing of metals and package testing of foods, drugs, and paints, as well as humidity effect on electronic components. The Tenney-Mite TH can pull-down from 70° to 0° in approximately three-quarters of an hour, and heats from 70° to 200° in approximately one hour, according to the firm.

Model TMTH0200 is the lowest-priced mechanically refrigerated, temperature-humidity equipment in the Tenney line.

Rheem Adds Packaged Steel Boiler Line

● To its gas and oil-fired cast-iron heating boilers for water and steam operation, Rheem Mfg. Co., Dept. AH&RN, 7600 S. Kedzie Ave., Chicago 52, Ill., has added a new line of packaged residential steel boilers.

There are four gas and four oil-fired models of fire-tube design. Graduated hourly gas inputs are 100,000, 125,000, 150,000, and 175,000 Btu.

Water-type boilers of square design have forced circulation and are supplied with or without tankless heaters to supply domestic hot water. Included in the package are pump, burner assembly, operating controls, relay, tankless heater, and relief valve.

Offer Capped-Certified Restrictor Tubing

● Capped-and-certified restrictor tubing is announced by the Kensico Tube Co. Div., Robinson Technical Products, Inc., Dept. AH&RN, Mt. Kisco, N. Y., with the certification covering 100% testing of tubing to meet flow specifications.

After testing, lengths of certified tubing are capped at both ends with a heat-sealed plastic. The factory capping saves a sealing operation by the equipment manufacturer in the sub-assembly stage, while the certification replaces the individual testing by the manufacturer, it was pointed out.

Kensico Tube produces the capped-and-certified tubing in sizes from a minimum of 0.072 in. o.d. by 0.026 in. i.d. to a maximum of 0.172 in. o.d. by 0.115 in. i.d.

3 Fedders Dehumidifiers Have Humidistat

● A new line of four dehumidifier models has been introduced for the 1962 season by Fedders Corp., Dept. AH&RN, 58-01 Grand Ave., Maspeth 78, N. Y.

Three of the newly-styled and newly-engineered models features a built-in humidistat. The completely automatic "Custom Dehumatic" DHF-5 model includes Fedders' "Safety Flowguard," which turns the unit off when the condensate pan is full, and turns on an automatic signal light. The light goes off when the pan has been emptied.

The 1962 models are all equipped with concealed, 10-qt, rustproof polyethelene condensate pans. The ⅛ and ⅙-hp compressors remove up to 32 and 48 pts of moisture per 24 hrs, the company said adding:

"These new models are more attractive and more compact than ever before, with cabinets in

Tahiti tan with gold and white or brown and white trim. The entire unit measures less than 19 in. high, 18 in. deep, and 14 in. wide."

Equipped with casters, all models may be wheeled from room to room, or, they may be connected to permanent drains and with the casters removed, installed over laundry sinks or built into a bar.

New Contactors, Starters Fill Out G-E Line

● Newly-designed 20, 25, and 75-amp contactors and starters have been added to its line of air conditioning, refrigeration, and resistance heating controls by General Electric Co., Dept. AH&RN, Schenectady 5, N. Y.

The new size offerings supplement G-E's present 30, 40, 50, and 60-amp units, making a total of seven different sizes, all rated up to 600 volts.

New 20 and 25-amp units, in addition to 30 and 40-amp forms, have a new baseplate design which allows for interchangeability with other makes. The 75-amp models feature compact design and out-the-front accessibility for easy

maintenance, the company said. All forms of this complete line feature straight-through wiring.

NEW THERMOSTAT REPLACEMENT KIT!

NINE KLIXON THERMOSTATS AND THREE TYPES OF INTERCHANGEABLE MOUNTINGS FIT MAJORITY OF HOT-AIR SYSTEM NEEDS!

Here's good news for both distributors and contractors! No need now to stock a lot of thermostats for replacement service on hot-air systems. This new KLIXON Star Line SL-4 Kit meets most requirements with only 6 assorted fan switches, 3 assorted hi-limit controls and 13 assorted interchangeable mounting flanges. Supplemental pieces available separately for kit replenishment or special temperature ranges. Replacement chart on inside cover of kit simplifies identification. Easier ordering, smaller inventory, speedier servicing! Distributors wanted. Write for complete information today!

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A CORPORATE DIVISION OF
TEXAS INSTRUMENTS
INCORPORATED

THE MASTER SERVICE MANUALS - - -

— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast.

BUSINESS NEWS PUBLISHING CO., DETROIT

TAKE ALONG REFRIGERATION'S GREATEST TEAM!

TRACE to find leaks... Leak Lock to stop them

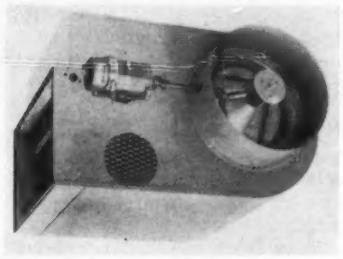
Use this famous pair. They save work for you, prevent future trouble...at very little cost. Both *Trace* and *Leak Lock* are easy to apply, and are effective with any type of refrigerant. Take them on *every* job.

TRACE ...the simplest, safest, refrigerant leak detector. Circulate through the system with the refrigerant—pinpoints leaks with brigh color—detects minute, intermittent leaks—shows through coatings c ice—leaves positive leak tag.

Leak Lock ...the joint sealer engineered for refrigeration use Withstands the solvent action of refrigerants, rapid temperature change corrosion. Stays flexible while giving a *permanent seal*, keeps joints fron freezing, stops loosening of nuts, plugs and fittings caused by vibratio

FREE SAMPLES—Ask your supplier for "Trace" or "Leak Lock," or write on your letterhead for free samples.

HIGHSIDE CHEMICALS INCORPORATED
18 COLFAX AVENUE • CLIFTON, N.J.



Booster Air Mixing Unit Has Many Jobs

● Introduction of the BMB booster air mixing unit has been announced by Barotherm Corp., Dept. AH&RN, 1630 Industrial Park St., Covina, Calif. The unit has been designed to accomplish the following:

"To provide multizone control for single duct systems; to provide a dual duct effect for heat pumps and package air conditioning units using single duct systems; to rebuild static pressure to air-starved zones in dual or single duct systems; to reduce supply duct sizes on heating jobs using high temperature air at low velocity; to simplify engineering; to reduce job balancing costs and provide a low cost, efficient installation."

The BMB is applicable to schools, medical buildings, stores, small hospitals, motels, and homes.

Two-Way Radio Needs No License To Operate

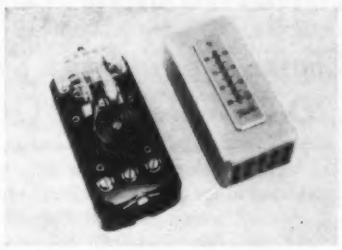
● A two-way hand-held "transceiver" recommended for contractors, field crews, and other "on the job" applications is being manufactured by the E. F. Johnson Co., Dept. AH&RN, Waseca, Minn.

Priced at $109.50, the "Personal Messenger" requires no license for operation and may be used at once without an examination or filing out an application, according to the company. The unit has also been designed for use with licensed Citizens' Band equipment at extended ranges.

The Personal Messenger is battery powered and is equipped with a plug-in battery case for either standard pen light cells or the longer-lived mercury cells. Available as accessories, a rechargeable nickel-cadmium battery pack or a cigarette lighter adapter may also be used to power the unit.

"Stepped-up performance and extended range," the manufacturer said, "is due to a superheterodyne receiver with an exclusive tuned RF amplifier; a two-stage transmitter; and an automatic noise limiter circuit."

Evaporator Thermostat Gives Precise Control



● A new evaporator thermostat featuring a full bellows construction for precise control of switching has been announced by Danfoss, Inc., subsidiary of Danfoss of Denmark, Dept. AH&RN, 115 Dell Glen Ave., Lodi, N. J.

Offered in three models, the new 51B thermostat is an advanced design of the Danfoss type 50 unit. A feature is a rustproof housing constructed of heavy gauge brass with nickel plating.

The new thermostat is designed for OEM and replacement use in household refrigerators and freezers, water and beverage coolers, commercial freezers, ice cream cabinets, and similar equipment. Unusual feature of the Danfoss bellows is said to be its large cross-section (1-in. dia.), and four-pleat construction.

Approved and listed by UL, the new line incorporates (1) a standard unit with temperature adjustment knob, (2) a universal mount unit with temperature adjustment knob, (3) a fixed-temperature-setting freezer unit without a knob. As a customer convenience, Danfoss delivers the first two models with specified cut-in and cut-out temperatures pre-set.

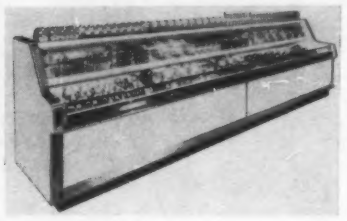
Offer Plans, Parts List for Test Panel

● Schematic electrical drawing, instructions, and parts list for a "factory level test panel" that a serviceman can build himself are offered by Frigid Equipment Co., Dept. AH&RN, 1340 St. Stephens Rd., Mobile, Ala. Price is $3.95 postpaid in the U.S.A.

Regarding the panel, the company said this "is actually comprised of two test panels in one. The first panel provides an accurate, systematic way of testing all single-phase appliances, including air conditioners, refrigerators, freezers, and remote units. When used together, the panels act as a compressor tester."

More details on the products described on these pages may be obtained by writing the manufacturer at the address given in each story.

2-Shelf Meat Case Offers Self-Service



● The availability of a new two-shelf, self-service case for the protection and display of fresh meats has been announced by McCray Refrigerator Co., Inc., Dept. AH&RN, Kendallville, Ind.

This model has a 56-in. rear height and features a 16-in. refrigerated wall shelf. It is positioned at an easy shopping height of 45 in. above the floor.

These cases are available in 8 and 12-ft lengths for continuous installation. They have fluorescent lights under the top of the case and under the wall shelf.

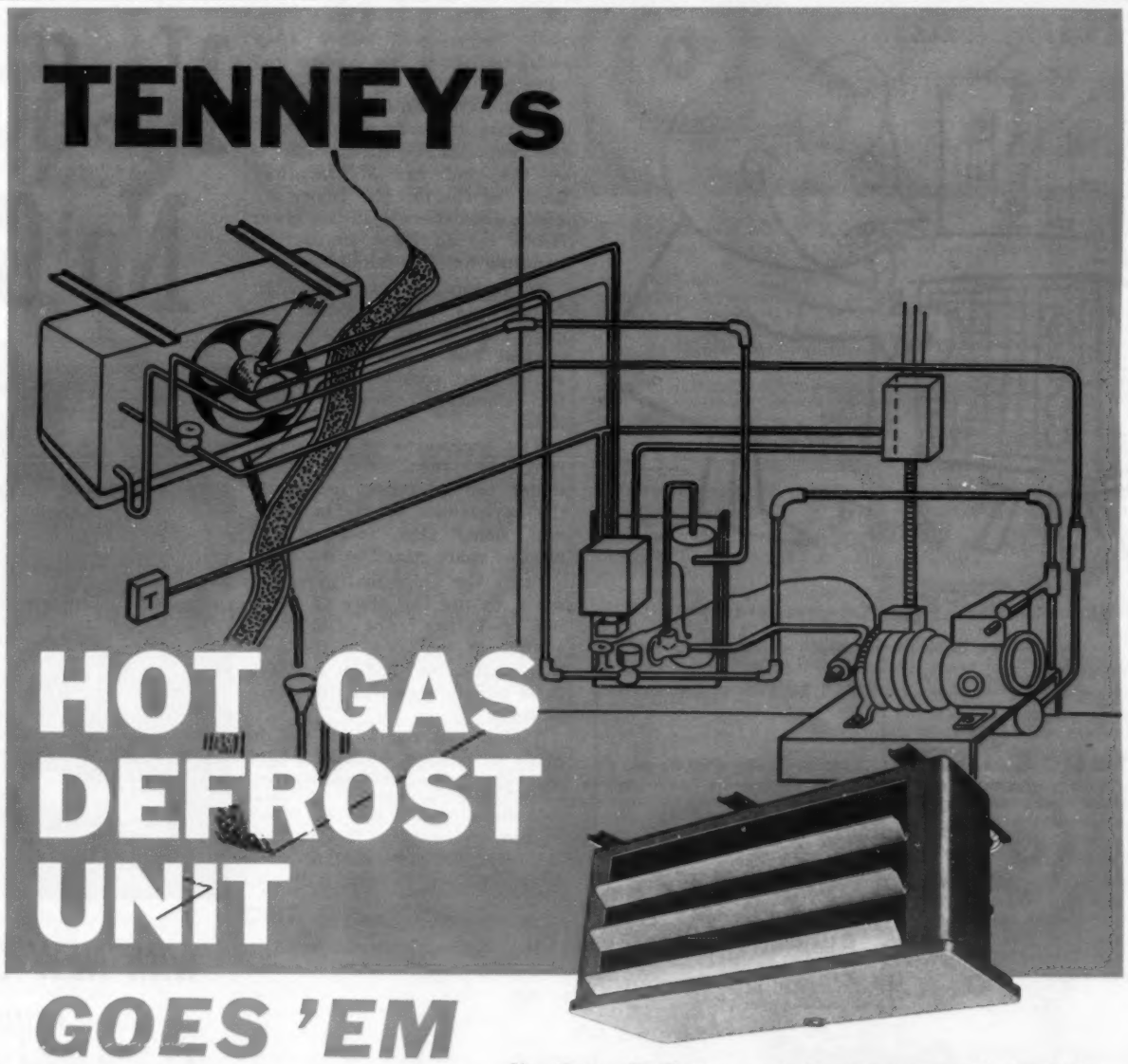
LUCAS CAP. TUBE CLEANER $19.65

Clears tubes without removal.

AT YOUR FAVORITE WHOLESALERS OR

Southgate Tool & Die Co.,
P. O. Box B-1097, Southgate, Mich.

TENNEY'S



HOT GAS DEFROST UNIT GOES 'EM ONE BETTER!

Refrigeration, Heating & Air Conditioning Products Division

Tenney ENGINEERING, INC.

1090 SPRINGFIELD ROAD • UNION, NEW JERSEY

No other unit offers as many important operating features as you'll find in Tenney's PDX hot gas defrost line! Tenney's conscientious engineering staff didn't settle for acceptable operation. They searched and tested and scrutinized for years until they developed a unit with all this:

- Generous separator-accumulator to provide centrifugal separation of liquid.
- Aspirated liquid bleed line which functions only when compressor is running.
- Crank-case pressure regulator to prevent compressor overload.
- Full time protection against flooding by means of thermostatic hot gas bypass valve.

The entire hot gas defrost unit is completely finished. No new techniques to master, no new instructions to study. And Tenney's PDX line is priced to be highly competitive. Write today for complete details!

Logistics & Economics of Air Conditioning (2)

Why an Induction System Was Chosen for Fireman's Insurance Bldg. With a Discussion of Advantages, Disadvantages of Other Systems

By Richard P. Graef, Project Coordinator, Walter Kidde Constructors

Engineering isn't the only problem in air conditioning existing buildings. Logistics and economics play an important role.

Last week, Richard Graef described these and outlined the cost variations between the three types of air conditioning systems considered for installation in the existing 10-story Fireman's Insurance Building in Newark, N. J.

This week he explains advantages and disadvantages of each system for this installation and why an induction system was decided up. He also enumerates a number of other considerations in selecting equipment and tells why particular items were chosen.

Alongside the cost comparisons were arrayed the advantages and disadvantages that the particular proposals offered.

Induction System

Induction units, usually installed along the perimeter of the building where the major heat gains and losses occur, consist of a coil unit supplied with either hot or chilled water from a central source.

Each unit is also supplied by a quantity of high velocity conditioned air from a central source which escapes within the unit enclosure through a number of small nozzle orifices.

The flow of the conditioned air pulls, or induces, air from the room to move over the coil where it is cooled or heated.

Since the high velocity ducts need only supply a small portion of the cooling for the space, the ducts are relatively small—4 to 6 in. in diameter—and can be easily installed next to the outside wall along with the supply and return water lines and concealed from view with factory made metal enclosures.

Each individual induction unit can be controlled by a separate thermostat, or groups of them in a given zone may be placed under control of a zone thermostat.

Between season control is especially good. The units may be supplied with warm water and cooled air or chilled water and warm air as the building engineer determines rather than being limited to just cooling and heating.

In the Firemen's Insurance installation the refrigeration system supplying chilled water is on the roof and air handling units for the top five floors are also placed there with the lower floors served from similar air handling units in the basement.

Major advantages of the high velocity induction system are good air distribution, automatic control of each unit with built-in zoning and complete flexibility for relocating offices or partitions.

The enclosures of the units, replacing the old radiators under the windows, modernize the appearance of the building, and, being slim, increase the useable space near the windows.

Since the individual induction units, taking the place of existing radiators, are the only equipment installed in the useable space, installation requires little interference with the occupants.

Piping and ducts are put in place in normal working hours and the units themselves are quickly hooked up and covered with the factory made baked enamel coated enclosures.

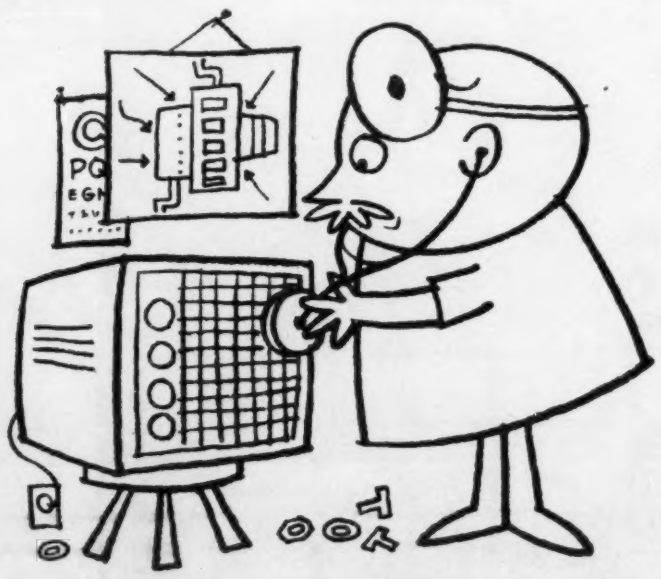
The larger equipment—refrigeration machinery, pumps, and fans—which take up more space and must be assembled on the site, were located on the roof and in the basement. There work could be carried on during normal working hours without interference with occupants' routines.

Low Velocity Duct System

In contrast to the induction system, the low velocity duct system would require the occupants to give up approximately 400 sq ft on each floor to house large individual air handling units.

In addition these units would require large louvered air intakes on every floor for outside ventilation air. Chilled water and steam would be supplied from refrigeration equipment on the roof and the existing boiler room.

One advantage of the low velocity duct system would be the reduction of piping required. Only one supply and return piping riser set would be required in contrast to the 37 separate vertical risers needed for the induction system. Fewer risers



Hermetic Medic Fights Compressor-itus!

No case is too large or too small for this dedicated fighter in the field of Compressor-ology. Dr. Medic insists that this dreaded sickness be stamped out completely. He has devoted all his time to this cause.

hermetics inc. 6122 N. 21st ST., PHILA. 38, PA.
REBUILDERS • All type refrigeration & air conditioning compressors • 48 hr. Service

No Squinting! No Guessing!

with NEW COLOR-CODED Imperial Magic Eye Liquid and Moisture Indicators

Now the Magic Eye tells at a glance if there is moisture in a system and whether or not the system is fully charged.

New color coding appears blue when dry, pink when moisture is present. The word "FULL" appears plainly in black letters on a white background when the system is fully charged . . . disappears when refrigerant is low. The larger letters are easier to read—can be seen at a greater distance.

Husky, forged brass body will not distort when installing. A special refrigerant-resistant "O" ring seals glass to body for leakproof performance. And a snap-in plastic cap protects the indicator from dirt and damage.

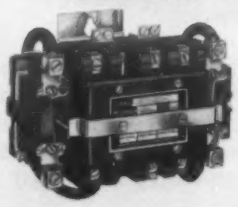
Available in sizes ¼" to ⅝" with flare connections; ¼" to 2⅛" with solder connections. For more information, ask for Bulletin No. 122-REF.

IMPERIAL EASTMAN

Imperial-Eastman Corporation General Offices: 6300 West Howard Street, Chicago 48, Illinois

Imperial-Eastman Corporation (Canada) Ltd., Barrie, Ontario
Imperial-Eastman, S.A., Apartado Postal 26544, Mexico 13, D.F.

NOW Ambient Compensated Overload Relays for 30, 40, 50 and 60 Ampere Definite Purpose Starters



Reliable and Accurate Protection Regardless of Heat or Cold

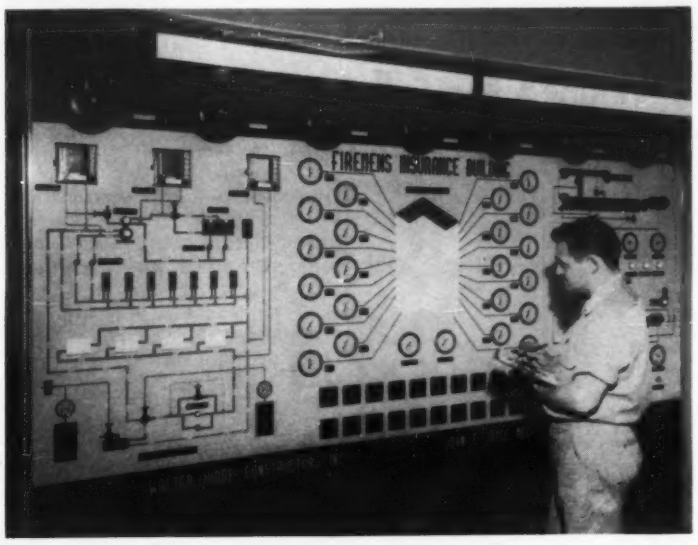
Here, for the first time, is a compact overload relay that compensates for both heat and cold, operating on the same time curve at all temperatures from —20°F to 165°F. Compensation is automatic. No field adjustment is needed. Operating mechanism is simple, rugged and dependable.

These starters, made specifically for Commercial Air Conditioning and Refrigeration Applications, feature: small size, straight-thru wiring, slotted mounting holes, extra heavy contacts and additional terminals.

0 —20°F 0 +165°F

Write for folder (Form No. A-262) to The Arrow-Hart and Hegeman Electric Co., 103 Hawthorn St., Hartford 6, Conn.

ARROW AH HART
Quality since 1890
MOTOR CONTROLS • WIRING DEVICES • ENCLOSED SWITCHES • APPLIANCE SWITCHES



OPERATIONS of the entire air conditioning system in Firemen's Insurance Building, Newark, N. J. is monitored and controlled by maintenance men from pneumatic control board. The Johnson Service Co. board indicates conditions throughout building and of equipment located on roof and in basement.

mean fewer holes cut through the floors and less patching after installation.

However, the low velocity duct system would do little for the building appearance since it would mean the installation of a large duct running down the center of the ceiling the length of each floor and retention of the existing radiators under the windows.

The duct system air distribution is usually considered inadequate since the long duct runs do not allow for good temperature control or zoning—the whole space must be treated alike.

Other drawbacks are the increased maintenance problems caused by the major equipment positioned on each floor, and the disruptions of building routine during the installation of the ducts in the middle of all work areas.

Fan Coil System

Most of the advantages of the induction system are also true of the fan coil system. In external appearances they are similar, and are installed under the windows.

Instead of using the high velocity stream of air to pull the room air over the cooling-heating coil, the fan coil unit contains a small fan which blows the air over the coil.

However, the motors powering the fans create an expensive problem of electrical wiring for each unit. And cooling or heating the existing air in the office is not sufficient since fresh ventilation air must also be supplied.

Two avenues are available: either a small opening in the exterior wall for each unit, or a separate duct system for the ventilation air.

In the case of the Firemen's Insurance Building openings would have been unsightly. In addition they would create operation and maintenance problems with infiltrating air and moisture during high winds.

The separate air distribution system, though brought into each area as easily as in the case of the induction system, would require special noise attenuators at each outlet—equipment that is designed into the induction units at the factory.

Other Systems Considered

Other air conditioning distribution systems considered—single or dual duct high velocity systems—provided no particular advantages over the systems discussed and additional disadvantages of either expense, loss of floor space, or poor appearance.

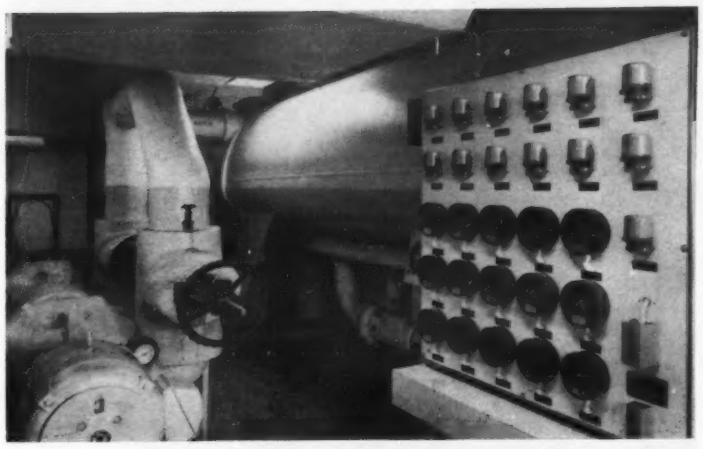
From Plan to Installation

The system decided upon, detailed studies were made of the existing heating boilers and comparison of refrigeration equipment. Boilers and burners were found to be in good condition.

Since the boiler plant was in good shape, and the availability of the roof for installation of the refrigeration equipment was more practical, steam absorption refrigeration equipment was chosen.

Vibrationless, the refrigeration equipment could be placed on the roof without major struc-

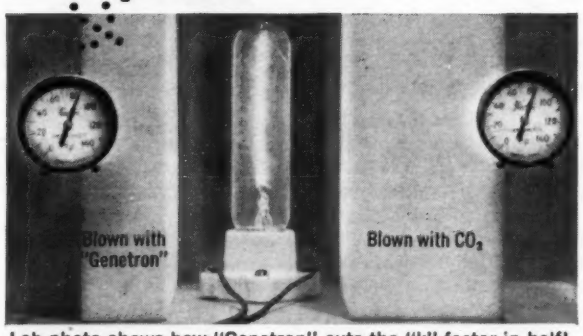
(Continued on next page)



PLACING gas absorption refrigeration equipment in existing maintenance room on roof shortened piping runs and saved valuable basement space for tenant use.

REDUCE THICKNESS

of urethane *rigid* foams by *half!*



Lab photo shows how "Genetron" cuts the "k"-factor in half!

with genetron® Blowing Agents

Equal insulation, yet half the thickness! "Genetron"-blown urethane foams offer far superior insulation performance – as much as 2 times the insulating value of CO_2-blown foams, and 2½ times that of glass wool batting.

Plus many other advantages: Foams blown with "Genetron" fluorocarbon gases rise at lower temperatures, permit larger forms. They're easier to control – "Genetron" does not react with other constituents. They cure rapidly, even at room temperature . . . and they're safer. "Genetron" -blown foamed-in-place urethanes have all the structural advantages of ordinary urethanes!

Write for our comprehensive technical bulletins, "Genetron Blowing Agents for Rigid Urethane Foam," and "Determining Genetron Content of Rigid Urethane Foam."

Other major components of the urethane foam system produced by Allied Chemical: polyethers and Nacconate® diisocyanates by National Aniline Division; resins by Plastics Division.

Allied Chemical

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N. Y.

Ray Edwards Answers Some Questions On:

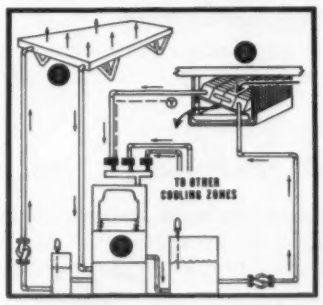
AIRVEC... AN AMAZING COOLING SYSTEM THAT PAYS OFF IN SILENCE AND LOW MAINTENANCE!

Q. I've heard about Airvec. What does it mean?

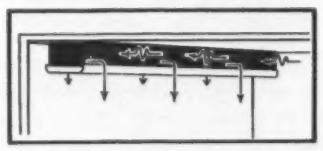
A. The Edwards Airvec System completely eliminates the noise associated with thru-the-wall and other fan—coil air conditioners. Noisy air-conditioners in apartments, motels and commercial buildings are a nuisance and can be money-losers. Motel operators, for instance, lose patronage. Office or factory employees don't work as well.

Q. How does Airvec work?

A. Let me draw you a sketch. Edwards Airvec Chilled Water System consists of (1) a packaged zoned chiller connected to (2) silent gravity room cooling coils. The chiller heat is rejected thru (3) the external Airvec condenser. Here's a schematic sketch of the piping layout.



Inside the rooms of the building to be cooled, inconspicuous valances near the ceiling hold the two or four tube system, through which is piped the chilled water. The valance looks like this:



Q. Do you put it near the ceiling because cool air drops?

A. Of course, and the result is gentle, draftless cooling, moving by convection alone, no rush of air forced out by noisy fans.

Q. What about maintenance?

A. There are no fans, no belts, no need to lubricate, no air filters, no cooling towers. The elimination of these unnecessary devices alone represents a substantial saving over the years.

Q. Anything else we should know about the Edwards Airvec System?

A. Yes. You should know about Zone Control. Temperatures in each room, apartment or area can be individually controlled for the comfort of the occupant by means of inexpensive Edwards Zone Valves.

Q. Is this another Edwards first?

A. We think it is. We are emphazing the idea of a completely packaged cooling system with silence and low maintenance as prime objectives. In cooling and heating, remember, we *engineer* our products — that's why we stress the word "Engineering" in our corporate name.

Q. Can I get more details?

A. Certainly. Just fill out the coupon below and we will rush you special descriptive sheets on Airvec and a sheet on our "Zone-Controlled" heating system. We will help you lay-out your jobs, too.

EDWARDS ENGINEERING CORP.
Pompton Plains, N. J.
TEmple 5-2808

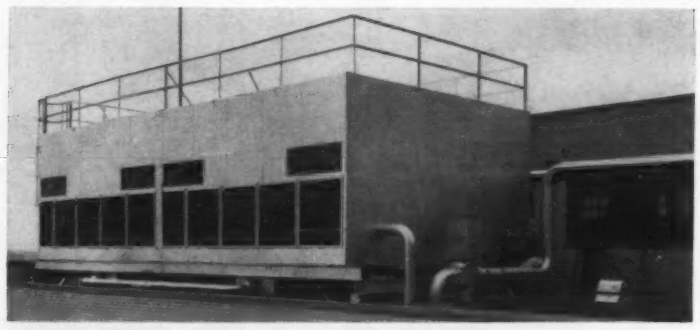
PACKAGED HEATING AND COOLING THROUGH YOUR CONTRACTOR

YES, SEND ME YOUR LITERATURE ON:

- ☐ Airvec System
- ☐ Zone Controlled Heating
- ☐ Layout and engineering help

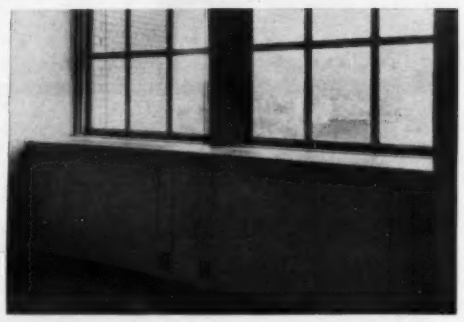
NAME _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____

ACH1016



COOLING TOWER installed on roof with refrigeration equipment housed in nearby existing maintenance room simplified piping.

BEFORE: This is what office looked like after removal of old radiators and drilling of holes for air duct and chilled water risers.



AFTER: Enclosed induction units under window modernized interior of building and eliminated dark mahogany wainscotting that dated structure.

Logistics & Economics--

(Continued from preceding page)

tural alterations. In addition, the existing main steam riser could be used.

Electric powered refrigeration equipment would have required additional heavy wiring, and, if placed in the basement because of vibration problems, installation of two 12-in condenser water lines to the roof cooling tower.

Costs of the two different refrigeration machines including the additional power and condenser piping were comparable and it was estimated that the steam absorption unit would cost $5,000 per year less to operate.

Additional Work

Additional electric service had to be brought in with a supplementary transformer and additional switchgear installed. Also a new maintenance room was required on the roof since the existing room was used to house the refrigeration equipment.

Contracting Construction

Due to the many contingencies of working in an occupied building where the owner has a share of responsibility in regulating work schedules, Kidde suggested that the contract for the installation be made on a cost plus basis rather than under a lump sum bid.

Under a lump sum bid the owner faces a continual negotiation of work orders due to unforeseen interferences with the installation operation.

The actual installation of the system was carried off with dispatch. The heating system was ready to operate by the beginning of the heating season and the entire installation completed in 11 months.

In operation, the system had no difficulty meeting the extreme zoning requirements either during summer, winter, or between seasons when many building engineers are driven to flipping coins to decide whether heating or cooling is required.

Titus Appoints Edward J. Brown

WATERLOO, Iowa — Edward J. Brown, former research assistant professor of mechanical engineering at the University of Illinois, has been appointed research engineer at the Titus Research Laboratory, Titus Mfg. Corp., it was announced by Harold Straub, laboratory director.

Straub noted that Brown, while at the University of Illinois, was principal investigator on a number of projects—including an investigation of dampers used in large duct systems and the National Warm Air Heating & Air Conditioning Association's residential year-round air conditioning project.

Hand or Motor-Operated Ventilator Developed for Fall-Out Shelters

HAND or motor-operated "Shelt-A-Vent" developed by Lau Blower Co.

DAYTON—A new fall-out shelter ventilator, called the "Shelt-A-Vent," has been developed by The Lau Blower Co. here. It can be operated either by hand or through a motor connected to any regular 110-volt circuit.

Company officials say the motor provides ventilation to remove stale damp air prior to a shelter's occupancy or while electricity is still available. With the hand crank, the ventilator delivers the same amount of air, through turning a gear drive, as with the motor.

Since the ventilator would not have to be continuously operated while the shelter is occupied, only periodic hand cranking would be necessary to bring in fresh air. Or, when electricity is available, it can be connected to an automatic timer for periodic air moving.

Mounted on a galvanized steel base with a clamp, the new ventilator can be mounted on a table, sill, ledge, or beam.

Standard 6-in. diameter ductwork is connected to the ventilator's side and run to the outside of the shelter for fresh air intake. A reducing collar can be attached for smaller diameter ducts.

The new ventilator delivers from 100 to 250 cfm, depending on diameter of the intake duct.

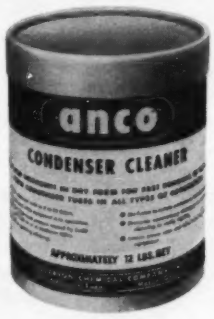
Production plans call for two models, one manually operated and the other with the dual feature of both hand and motor operation.

SHELTER DATA

ON PAGES 1, 26, 27, and 28 the NEWS presents stories relative to use of the industry's equipment in fall-out shelters. A reliable source of clean, filtered air is vital to survival of inhabitants of fall-out shelters as evidenced by the nearly fatal experience of two men in Hampton Beach, N. H. as related in the box on page one.

PREVENT costly downtime with anco condenser cleaner

No shutdown needed! Reduce headpressure within a few hours with one application of ANCO Condenser Cleaner. This concentrated, dry chemical is harmless to hands yet quickly and effectively removes heaviest rust and scale in condenser tubes. Equipment stays in operation!



- Dry Chemical
- No Fumes
- No Corrosion
- Fast Acting
- Easy to Use
- Inexpensive
- Safe to Handle

ANCO WATER TREATMENT cleans and protects circulating systems from rust and scale for peak operating efficiency.

ANCO ALGAECIDE removes and prevents growth of algae, fungi and slime in cooling towers and condensers.

Buy ANCO for sure profits
- √ Condenser Cleaner
- √ Water Treatment
- √ Algaecide

Anderson Chemical Company, Inc.
Box 1424 • Macon, Georgia

...no frost...no icicles at Miller Packing Company

This reproduction made from an unretouched photograph supplied by George F. Miller, owner, is visible proof of frost and icicle-free refrigeration.

"The excellent performance record of Krack units used in the original building was one of the major reasons for selecting more Krack units when our new storage room was added" *says George F. Miller.*

The BUC-ED low temperature units maintain temperature and humidity at a constant level to keep meat, poultry and frozen foods at peak freshness.

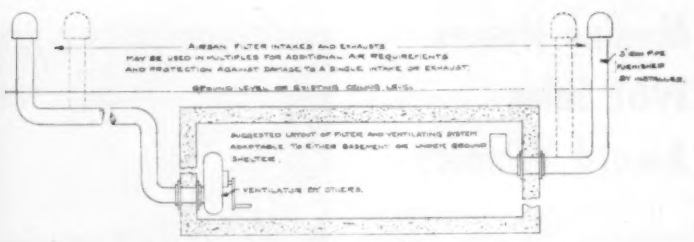
NEAT-AS-A-PIN REFRIGERATION
with Krack Automatic Electric Defrost Units

ADVANTAGES IN SELECTING KRACK EQUIPMENT
You save installation and maintenance costs because Certified Capacity Ratings guarantee equipment that matches the job. You gain advantage of lower bidding . . . no need to specify oversize equipment.

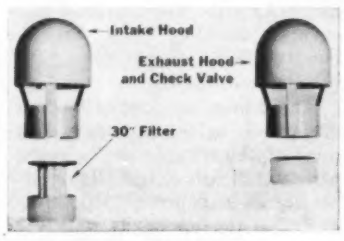
KRACK ENGINEERED

REFRIGERATION APPLIANCES, INC.
Manufacturers of Freon or Ammonia, Recirculated, Flooded or Direct Expansion Heat Transfer Equipment

MAIL COUPON FOR FREE BULLETIN BUC-ED 1159
REFRIGERATION APPLIANCES, Inc.
901 Lake St., Chicago 7, Ill., Phone: MOnroe 6-1141
Name_____
Firm_____
Address_____
City_____ Zone____ State_____


AIRSAN FILTER INTAKES AND EXHAUSTS
MAY BE USED IN MULTIPLES FOR ADDITIONAL AIR REQUIREMENTS
AND PROTECTION AGAINST DAMAGE TO A SINGLE INTAKE OR EXHAUST
SUGGESTED LAYOUT OF FILTER AND VENTILATING SYSTEM
ADAPTABLE TO EITHER BASEMENT OR UNDER GROUND
SHELTERS.
VENTILATION BY OTHERS.

SUGGESTED Filter and Ventilating System layout.



INTAKE AND EXHAUST hoods used in Airsan fall-out filter system.

Air Intake, Filtering, and Exhaust System 'Exceeds CDA Requirements'

MILWAUKEE—Of interest to firms engaged in the construction of basement, underground, or outside fall-out shelters is an air intake, filtering, and exhaust system that reportedly, exceeds rigid Civil Defense Administration requirements.

The inexpensive system, which was designed and is being manufactured by Air Filter Corp. here, is available through Will-Win Associates, Milwaukee, national sales director. Air Filter is the maker of "Airsan" filters for the industrial, commercial, and institutional fields.

"Priced at $59.50 to the homeowner, the new system is simple to install," the firm said.

It consists of two heavy steel hoods, one that fits securely over the shelter's air intake pipe, the other over the exhaust pipe; an easily replaceable 30-in. long filter that slips into the intake pipe entrance; and an anti-backdraft valve in the exhaust hood that opens only when a positive air flow is forced through the shelter.

"Heart of the system is the specially designed filter, which will permit an air flow of up to 300 cfm—a more than adequate supply for several people in the shelter. The average hand-powered or battery-driven air blower on the market today is designed to deliver about 50 cfm, sufficient for ten people at rest, or five engaged in activity.

"The filter media is supported by strong wire mesh and will block the passage of particles down to ten microns in diameter. Filter media will not sag, shift, or rupture. A gasket surrounding the top of the filter assures positive sealing against the intake pipe to prevent air from bypassing the filter.

"The filter is designed to provide protection from fall-out materials during the critical period following a nuclear explosion.

"Made of ⅛-in. deep-drawn steel, the intake and exhaust hoods are designed to withstand shock pressures of up to 100 psi. They attach securely to 3-in. IPS iron pipes, the standard size recommended by the CDA.

"Fitting like caps over the pipe ends, the hoods also provide a baffle that reduces the entrance of radioactive particles. The anti-backdraft valve prevents contaminated air from entering through the exhaust pipe.

The Airsan fall-out filter system comes individually packed. Weight is 9½ lbs.

Frigikar Bows Self-Contained Shelter System

Air Conditioning Included In Package

DALLAS—Development of a self-contained, automatic, anti-nuclear-fall-out utility system was disclosed here recently by Bert J. Mitchell, president of Frigikar Corp.

The system comprises an automatically-controlled electric power plant, multiple radio-active fall-out air separators, air conditioning and forced air systems.

At the same time, Mitchell revealed that master plans of the invention had been submitted to area civil defense engineers on a confidential basis.

OCDM officials were to witness a demonstration of the survival system under simulated wartime conditions, at the Frigikar plant here Oct. 9.

The power plant of the emergency utility, called, "Frigiking Automatic-Electro Fall-out Utility System," was designed to function entirely on butane because this fuel does not deteriorate, Mitchell explained.

He said the miniaturized system's compact, multi-purpose power unit is capable of automatically supplying electrical power to operate the fallout air separators, air conditioner, lights, refrigeration, radio, television, and small electrical appliances, for a month or longer without refueling. A month's supply of butane for cooking and heating is also provided.

"A month is twice the required safety period for bomb shelter confinement against fall-out," it was pointed out.

"Built to withstand all normally expected shock loads, the versatile apparatus also supplies forced air to expel noxious fumes, cigarette, and cooking

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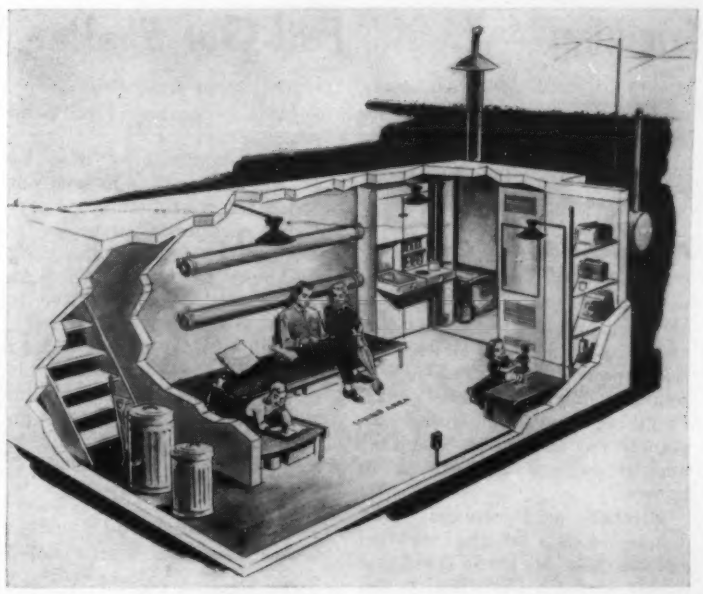
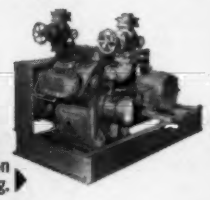


ARTIST'S conception of nuclear fall-out shelter equipped with "Frigiking Automatic-Electro Fall-out Utility System."

Summer Cooling... Winter Curling and Skating— all with ONE refrigeration system!

Main entrance to Prudhomme's Garden Centre Motor Hotel in Vineland, Ontario. This exciting summer and winter playground spot uses Vilter refrigeration to good advantage.



Two 6-cyl. Vilter VMC belt-driven compressors provide refrigeration at Prudhomme's for summer air conditioning and winter curling.

The Garden Centre Theatre becomes a regulation six-sheet curling rink during the winter months. The Vilter system is designed to produce ideal curling ice at the lowest possible power cost.

Year 'round use of your refrigeration capacity is sound business and enables maximum profit to be realized from your investment.

An excellent example of the year-'round utilization of refrigeration is Prudhomme's Garden Centre Motor Hotel in Vineland, Ontario, along the Queen Elizabeth Way. At this famous motel, recreation center and convention headquarters, Vilter refrigeration plays an important role in keeping guests happy.

During the summer months, refrigeration is required to air condition the 180-room motel, one of Canada's largest, and an 1100-seat summer stock theatre which draws large crowds to see outstanding stock productions of Broadway plays. In winter months, the same equipment builds ice surfaces for a 90′ x 180′ outdoor ice skating rink and a regulation six-sheet curling rink. The summer stock theatre building is used to house the curling rink with either a seating structure installed or plastic piping laid for the curling rink, depending upon the season.

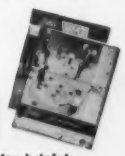
Vilter equipment installed at Prudhomme's includes two 6-cylinder VMC compressors and a 24″ x 20′ shell and tube condenser.

Vilter has had many years of experience in recommending and building refrigeration systems for air conditioning and ice rinks. This know-how, plus the use of dependable economical-to-operate Vilter equipment, can also mean a satisfying installation for you. Why not see your nearest Vilter representative today?

Sold and Installed by VILTER DISTRIBUTOR
J. L. Wilson and Sons, Limited, Toronto, Ontario, Canada

Vilter refrigeration air conditioning

The Vilter Manufacturing Corp.
Milwaukee 7, Wisconsin
Air Units • Ammonia and Freon Compressors • Booster Compressors Baudelot Coolers • Water and Brine Coolers • Blast Freezers Evaporative and Shell and Tube Condensers • Pipe Coils Valves and Fittings • Pakice and Polarflake Ice machines.



Write for helpful bulletins to The Vilter Manufacturing Corp., Dept. RN-614 2217 South First Street Milwaukee 7, Wisconsin

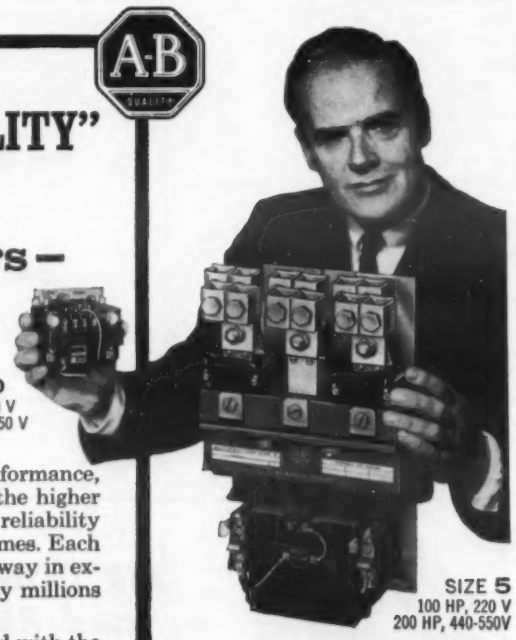
A-B QUALITY

The INHERENT "QUALITY" is the SAME—In All Bulletin 709 Starters—Size 00 Through Size 5

SIZE 00
1½ HP, 220 V
2 HP, 440-550 V

This complete new line of Allen-Bradley motor control will change every idea you have had about starter size, performance, and life. The new smaller size—especially in the higher ratings—is startling. Yet, rating for rating, the reliability and operating life have been increased many times. Each of the seven sizes is able to interrupt currents way in excess of Nema standards—each is good for many millions of operations without trouble or maintenance.

Don't miss this opportunity to get acquainted with the revolutionary new line of Bulletin 709 across-the-line starters. Please write: Allen-Bradley Co., 1313 S. First Street, Milwaukee 4, Wisconsin.



SIZE 5
100 HP, 220 V
200 HP, 440-550V

Despite the large difference in "ratings," note the "family" resemblance.

ALLEN-BRADLEY

QUALITY MOTOR CONTROL

Frigiking--

(Continued from preceding page)

smoke, provides humidity control with water extraction, and has provisions for an uncontaminated water supply of 82 or 120 gals.

Automatic Switch-Over In Case of Power Failure

"The system also embodies an automatic change-over switch, so that if a city's electrical power should fail for 15 minutes, due to any emergency, Frigiking's system would instantly cut in for use in either nuclear fall-out shelters or in homes."

Mitchell said economy and deluxe models of the survival system will be made available within 45 days. Distribution will be made through Frigikar's nationwide network of over 350 distributors and through bomb shelter manufacturers.

Fall-Out Shelter Ventilation--

(Continued from Page 1)

electrical generator is provided in the shelter.

The blower should also be large enough so that it need not be operated continuously to provide the occupants' air needs.

For safest results, incoming air should be filtered through both an absolute type filter to remove radioactive particles, bacteriological agents, and smoke (fire is an inevitable product of both nuclear and non-nuclear bombing), and an activated charcoal type filter, to remove other toxic chemicals in the air, Montfort advised.

Filtering Should Be Done Outside

Such filtering should be done outside, not inside, the living area of the shelter, he warned. For this purpose, most shelter plans provide for an entranceway that runs between 8-in. concrete block walls or 1-in. lead sheathing at a 90° angle to the living area doorway.

The supply blower and filters are located in this entranceway so that any radiation that gets into it will not penetrate through the shield wall into the living quarters.

For ducts, Montfort recommends 3 or 4-in. heavy galvanized plumber's pipe with flexible connections inside the shelter to connect with the blower.

Montfort believes that it would cost at least $75 to provide adequate absolute type filters for even the smallest type shelters and at least $350 if activated charcoal filters are added.

"While some cheaper mechanical filters are available," he said, "I doubt that they would stand up under the higher humidities that are to be expected. They are usually not designed to handle 100% outside air."

Montfort also recommends that some type of dehumidification be provided to the shelter.

If there is an independent power supply, the electrical refrigerant type is best, he believes. However, a chemical type dehumidifier, such as the "Dowflake," is available, though it is rather slow acting.

(For a report on ventilation for a community type fall-out shelter, see story published on page 2 of the July 31 issue of the NEWS.)

'62 Plant Engineering Show To Be Jan. 22-25 In Philadelphia

NEW YORK CITY—The next national Plant Engineering & Maintenance Show will occupy the largest exhibit area in its history, according to Clapp & Poliak, Inc., producer of the exposition.

Now in its 13th year, the show will return to the East Coast in 1962, when it will take place at Convention Hall, Philadelphia, Jan. 22 through 25.

More than 400 companies are expected to exhibit. About 350 already have been assigned booth space. Among the exhibits will be many new and improved products, including air conditioning, heating, and ventilating equipment.

Concurrently with the show, the 13th annual Plant Engineering & Maintenance Conference also will be held at Convention Hall. Visitors may obtain show, conference, and hotel information from Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Modine Names 1961 Sales Award Winners

RACINE, Wis.—Recipients of nationwide 1961 Sales Achievement Awards were named at a special meeting here by the Heating & Air Conditioning Div. of Modine Mfg. Co.

According to Leo Glascock, divisional sales manager, purpose of the awards is "to recognize significant accomplishments by our field representatives and to focus the spotlight of attention on those field organizations whose performance for the year has been particularly outstanding."

This marks the first year that Modine has conferred field sales awards but Glascock noted that the program is being placed on an annual basis.

So that an equitable evaluation could be made between territories of varying sizes, all territories were grouped by size of market in terms of building contract awards.

In the resultant six groups, awards were made for two achievements:

1. Top two territories having highest performance in terms of dollars shipped for each 1,000 sq ft of builder contract awards.
2. Top two territories showing the greatest improvement over the preceding years.

In this way, territories with a low performance ratio but showing marked improvement over the previous year could earn an award. At the same time, it was possible for a single territory to earn awards in both categories.

Named as award winners were: Group I, Lowrie & Co., Inc., Los Angeles; R. S. Doherty, New York, (two awards); and Staup & Harris Associates, Chicago.

Group II, Pacific Engr. Eqpt. Co., East Orange, N. J.; A. H. Anderson Co., Boston; R. R. Walters Co., Minneapolis; and Russell J. Smith, Inc., St. Louis.

Group III, Ohio Hydronics, Inc., Cleveland; D. H. Jacobson, Dallas; George Weeks & Associates, Jacksonville, Fla.; and Fink & Kress, Indianapolis.

Group IV, N. H. Yates & Co., Inc., Baltimore; Watts Engineering Sales, Birmingham; Hydronics Inc., Milwaukee; and Manufacturers Sales Co., Kansas City.

Group V, R. E. Gardner Co., Nashville; B. G. Peterson, Omaha; Rex Bircket & Co., Tulsa; and John A. Sandberg Co., Moline, Ill.

Group VI, H. Walter Flower, Louisville; R. E. Burden & Son, Rockford, Ill.; Herlin Engineering Co., El Paso, Texas; and Erie Stoker & Heating Co., Erie, Pa.

these
Revcor
blower wheel
achievements
can help you improve your product

✳ **high output performance**
Revcor sets the standard for the industry.

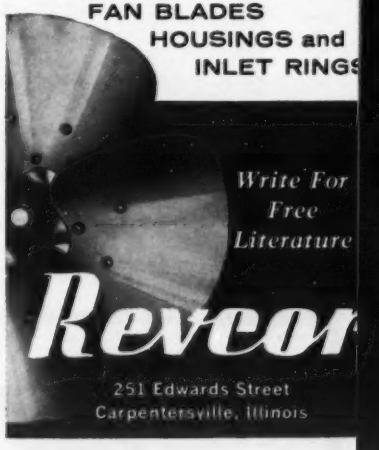
✳ **closer tolerances**
provide less run out, better balance

✳ **adjustable center discs**
on double inlet wheels reduces length of shaft on direct drive wheels.

✳ **maximum strength and rigidity**
through exclusive Revcor designs.

REVCOR BLOWER WHEELS
are used by over 60% of the Room Air Conditioner Manufacturers!

REVCOR MAKES ALL
BLOWER WHEELS
FAN BLADES
HOUSINGS and
INLET RINGS



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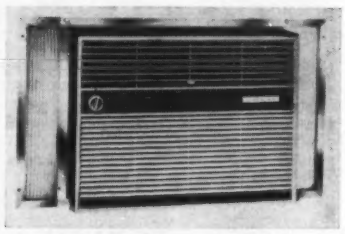
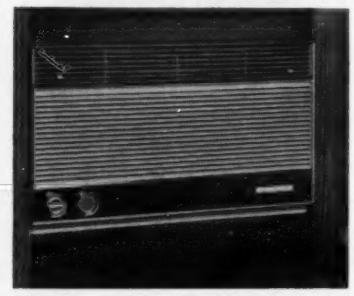


READY-MOUNT MODEL may be installed quickly and easily with expandable wing panel. It also may be installed with standard window mounting kit or with the new Carrier through-the-wall kit.



SCEPTRE AND VISCOUNT series have identical styling. Sceptre is only 14 in. deep; the higher capacity Viscount, 24 in.

Carrier--

(Continued from Page 1, Col. 5)

Ready-Mount, with or without translucent wing panels, in a compact 12-in. deep cabinet; the "Cavalier" series with the same Btu capacities as higher-priced models but aimed at the budget-minded customer; the "Sceptre," only 14 in. deep and delivering up to 9,600 Btu; the "Viscount," 24-in. deep models with a top capacity of 15,000 Btu; and the "Imperial," a compact model delivering 20,000 Btu, it was stated.

Versatility

"Versatility of the line is emphasized by the new 115-volt, 6,000-Btu Ready-Mount," it was pointed out. "Speed and ease of its expandable wing panel installation make it ideal for the do-it-yourself market. The aluminum framed translucent Mylar side panels pull out to seal windows up to 40 in. wide.

"When used with the new through-the-wall installation kit, the unit becomes a low-cost through-the-wall air conditioner. It is sized for many bedrooms and motel rooms, has a reduced sound level, and a single on-off thermostatic control located on the front."

Promotional Series

The special promotional series of seven Cavalier models is for customers who need units with greater capacity than the Ready-Mount at minimum cost, Dougherty said.

Two 115-volt Cavalier models offer 7,000 Btu on 7½ amperes, or 8,500 Btu on 12 amperes while 208 and 230-volt units, in the same size casings, produce 9,000 Btu. Another 230-volt model has a 9,600 Btu capacity.

Two other models with 208 or 230 voltage are available in larger 24-in.-deep chassis which produce 14,000 Btu.

"While these seven models equal in capacity to some of the more expensive Sceptre and Viscount units, the budget price is achieved by eliminating exhausts and vents and by having two-way air deflection instead of four," it was explained. "The models are thermostatically controlled and have two-speed fans."

The four smaller Cavalier units and all six Sceptre models are 14 in. deep, 16 in. high, and 26½ in. wide. Dougherty noted that these cabinets are among the most compact on the market for units of such capacities.

Two Sceptre 115-volt models offer a choice of 7,000 Btu on 7½ amperes, or 9,000 Btu on 12 amperes. The 208 and 230-volt Sceptres produce 9,600 Btu of cooling.

The Viscount series in a 24-in. deep casing offers 115-volt models with capacities of 8,500 Btu on 7½ amperes and 11,000 Btu on 12 amperes. The 208 and 230-volt models provide either 13,000 or 15,000 Btu. The 13,000 Btu model has a notably high efficiency rating for a room air conditioner—7.8 Btu per watt, Carrier said.

For the first time, some models are available with Carrier's new hermetic compressor. Called the "Micromite," this compressor contains less than half as many parts as its predecessors and is designed for inexpensive operation and low maintenance. Viscount models are 16 in. high and 26½ in. wide.

The Imperial model has a centrifugal evaporator fan which handles 470 cfm. The four-row condenser coil permits an output of 20,000 Btu with power consumption of only 2,900 watts, according to Carrier. It is 24 in. deep, 26½ in. wide, and 18 in. high.

The Sceptre, Viscount, and Imperial series feature four-way air deflection, exhaust, and ventilation settings.

Heat pumps include a Sceptre series in 115 volts without supplemental strip heat and a 230-volt model with an additional 5,500 Btu of electric strip heat capacity. A Viscount series 230-volt heat pump gives 14,000 Btu of cooling and adds strip heat of 6,200 Btu on heating. An Imperial heat pump provides 20,000 Btu of both cooling and heating. All have automatic defrost.

Carrier's 26 models are highly resistant to rust, according to Dougherty.

Dallas-Ft. Worth--

(Continued from Page 1, Col. 1)

NEWS by two local electric utilities.

Previous high week was that ending Aug. 25, when 119 installations were made in homes. Then the number dropped to 73 in the week ending Sept. 1 and to 70 in the week ending Sept. 8. The Sept. 15 week total jumped to 92 and the Sept. 22 week to 132.

Number of commercial, industrial, and governmental installations declined slowly during September, though large tonnages were installed in both the weeks ending Sept. 8 and 15.

Number of installations and total tonnages reported by the Dallas Power & Light Co. and the Texas Electric Service Co., Fort Worth Div., are as follows:

Residential

Week Ends	No. Jobs	Total Tons
Sept. 1	73	261.5
Sept. 8	70	245.0
Sept. 15	92	317.0
Sept. 22	132	410.5
Sept. 29	78	362.5

Commercial, Industrial, And Government

Week Ends	No. Jobs	Total Tons
Sept. 1	24	395.5
Sept. 8	23	1,043.0
Sept. 15	21	1,084.5
Sept. 22	16	267.5
Sept. 29	13	127.5

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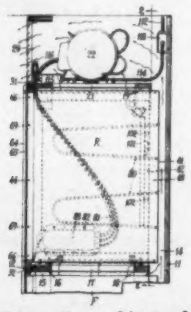
PATENTS

Week of June 6 (continued)

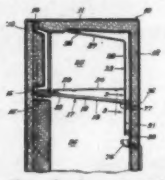
2,986,900. BUILT-IN REFRIGERATION AND FOOD FREEZER CONSTRUCTION. Frank P. Crotser, Adrian, Mich., assignor to Revco, Inc., Deerfield, Mich.



2. A refrigeration cabinet adapted to be mounted within an enclosure in close spaced relationship thereto and adapted to be supported in said enclosure by cabinet supporting members integral with said enclosure, said cabinet comprising a metal shell, a liner disposed within the shell in spaced relation thereto, insulating material in the space between the shell and liner, and cabinet supporting means secured to said shell and arranged for engagement with said supporting members. . . .

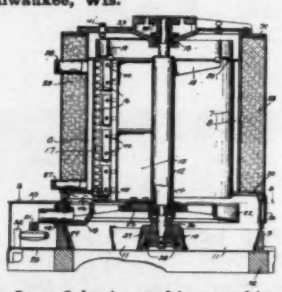
2,986,901. REFRIGERANT EVAPORATOR. Earl F. Hubacker, Evansville, Ind., assignor to Whirlpool Corp., a corporation of Delaware.

1. A refrigerator, comprising: means forming a first compartment; means forming a second compartment; a continuous evaporator with refrigerant flow passages therein, the evaporator having a first portion in thermal con-



tact with the first compartment for cooling the same and a second portion in thermal contact with the second compartment for cooling the same, the refrigerator operating in successive on and off cycles with refrigerant flowing through said passages. . . .

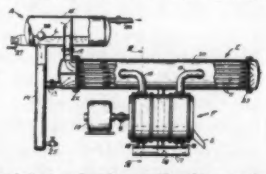
2,986,902. FLAKE ICE MAKING MACHINE. William E. Michener and Robert J. Christiansen, Milwaukee, Wis., assignors to The Vilter Mfg. Co., Milwaukee, Wis.



1. In a flake ice making machine, an upright jacket mounted and supported upon a bottom spider and having a refrigerated annular inner freezing surface, a rotor assemblage having an upright propelling shaft disposed centrally within said jacket and also having means for depositing water onto said surface and a series of revolvable knives for removing congealed water from the surface and for delivering flake ice through said spider. . . .

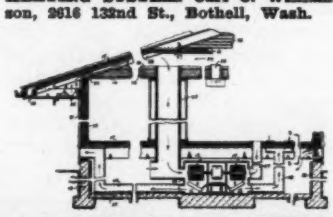
2,986,903. HEAT EXCHANGER SYSTEM FOR ICE MAKING MACHINES. Erich J. Kocher and Michael F. Tokach, Milwaukee, Wis., assignors to The Vilter Mfg. Co., Milwaukee, Wis.

In combination, an ice freezer having an annular refrigerant space through which secondary volatile refrigerant is adapted to pass, means for removing ice accumulations from one surface of said freezer, an accumulator for primary volatile refrigerant located above said freezer, and a heat exchanger



comprising a horizontally disposed cylindrical shell having a series of horizontal tubes therein and located intermediate said accumulator and said freezer, said tubes comprising a tube side of the exchanger through which only said primary volatile refrigerant is circulated directly from and to said accumulator. . . .

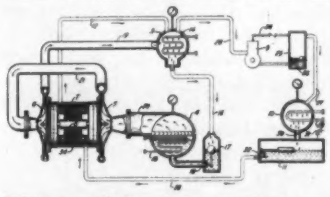
2,986,904. HEAT PUMP SPACE HEATING SYSTEM. Carl C. Williamson, 2616 132nd St., Bothell, Wash.



1. In combination with a building having a basement, living space above the basement, a roof, and an attic between said living space and roof, thermal insulation thermally isolating most of said attic as an attic chamber spaced from said roof, connection from the space between said roof and attic chamber with air from outside the building, air intake ports from outside the building to said attic chamber and having normally closed flapper valves therein adapted to open responsive to a drawing of air from said chamber, an air duct leading from said attic chamber to said basement. . . .

2,986,905. REFRIGERATING SYSTEM. Erich J. Kocher, Milwaukee, Wis., and Whitney I. Grant, Muskego, Wis., assignors to The Vilter Mfg. Co., Milwaukee, Wis.

1. In a refrigerating system having a main condenser cooperable with a main evaporator, a main compressor interposed between the main evaporator and main condenser and being operable to withdraw gaseous refrigerant from said evaporator and to deliver the same into said condenser, an electric motor having a hermetically sealed casing confining a stator cooperating with a rotor drivingly connected to said main compressor, and a refrigerant purger for the system interposed between said main condenser and said motor and

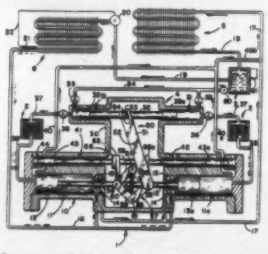


being provided with an auxiliary compressor having an inlet for withdrawing gaseous refrigerant from the main condenser. . . .

2,986,906. ABSORPTION REFRIGERATING MACHINE. Edward M. Stubblefield and Per Edberg, La Crosse, Wis., assignors to The Trane Co., La Crosse, Wis.

1. An absorption refrigerating machine comprising a unitary sealed horizontal substantially cylindrical elongated container having therein an absorbent and a refrigerant, an elongated partition extending longitudinally of said container and having each of its longitudinal sides secured to the cylindrical wall of said container to divide said container into a high pressure upper chamber and a low pressure lower chamber, a generator and a condenser in the high pressure upper chamber of said container, an absorber and an evaporator in the low pressure lower chamber of said container. . . .

2,986,907. REFRIGERATION SYSTEM. Frederick R. Hoop, 509 S. Division, Grand Rapids, Mich., assignor of one-half to Serafim M. Koukios, Grand Rapids, Mich.



1. In a refrigeration system adapted to utilize a refrigerant having a low boiling point, the combination comprising: a source of liquid refrigerant; a heated flash chamber capable of substantially instantaneously flashing refrigerant; a housing defining a cylinder; a piston in said cylinder operatively connected to a refrigerant compressor adapted to compress refrigerant in one direction of movement of said piston; first means for urging a measured quantity of liquid refrigerant from said refrigerant source into said flash chamber; second means for conducting gaseous refrigerant from said flash chamber to said cylinder for urging said piston in said one direction; a condenser and third means for conducting refrigerant from said compressor to said condenser; an evaporator receiving refrigerant from said refrigerant source; fourth means for returning refrigerant from said evaporator to said compressor.

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MISCELLANEOUS

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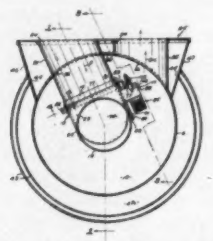
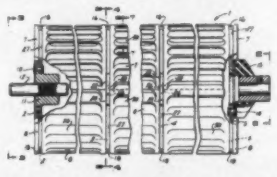
2,987,138. COMBINED AIR FILTER AND TEMPERING DEVICE. George M. Walton, Shaker Heights, Ohio, assignor, by mesne assignments, to Rockwell-Standard Corp., Coraopolis, Pa.



A self-contained air filter comprising a housing having separate cold and warm air inlets and passageways leading therefrom inside of said housing to a common junction, a mass of metallic air filtering material in said housing downstream from said junction, an air discharge passageway downstream from said filtering material and leading to the outside of said housing, a portion of said discharge passageway lying just outside of said common junction of said air inlets, said housing and passageways compelling all air flow to move from said inlets, through said filtering material and out said discharge passageway. . . .

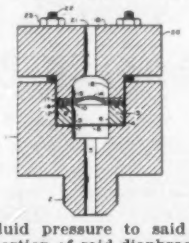
2,987,172. FAN ROTOR AND METHOD OF MANUPACTURING SAME. John C. Linsenmeyer, Grosse Pointe, Mich., assignor, by mesne assignments, to American Radiator & Standard Sanitary Corp., New York, N. Y.



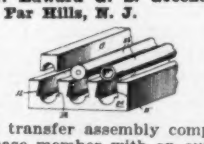
1. A fan rotor comprising a plurality of spaced parallel rings having integrally projected therefrom a series of fastener elements, a plurality of arcuate sheets positioned on the rings and having apertures therein in registry with the fastener elements, said sheets having a series of blades integrally therefrom, and said fastener elements being deformed whereby to secure the sheets on the rings.

2,987,218. SAFETY PRESSURE RELIEF DEVICE. Norris L. Erikson, Tulsa, Okla., and Franklin A. Hansen, Kansas City, Mo., assignors to Black, Sivalls & Bryson, Inc., Kansas City, Mo.

1. A safety pressure relief device comprising, a rupturable diaphragm mounted in a relief passageway, said diaphragm having an outer flange portion and a central rupture portion, a piston engaging the pressure side of said flange portion of said diaphragm, said piston being annular in shape to provide a passageway for communication of fluid pressure to said central rupture portion of said diaphragm, first sealing means in the outer cylindrical surface of said piston. . . .

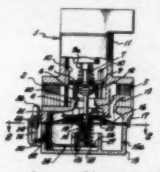


2,987,300. HEAT TRANSFER ASSEMBLY. Edward G. S. Greene, P.O. Box 473, Far Hills, N. J.



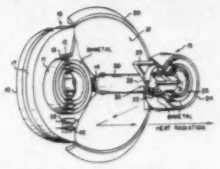
A heat transfer assembly comprising a solid base member with an outwardly-opening elongated recess, the inner portion of which is substantially semi-circular in cross-section and terminates in shoulders extending laterally therefrom, the outer portion of said recess being defined by surfaces converging to the outer surface of said base member from the outer edges of said shoulders, a heat-transfer tube closely fitted in said semi-circular recess portion. . . .

2,987,309. ADJUSTMENT MECHANISM FOR VALVES. Laurence C. Biggle, Altadena, Calif., assignor to General Controls Co., Glendale, Calif.



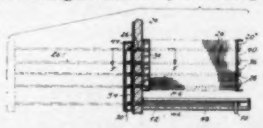
1. In a spring adjustment structure for a fluid pressure regulator: a helical spring; a support for one end of the spring, the other end serving to exert a resilient regulating force; a lever upon which the support is mounted; a casing enclosing the spring and lever; said casing having a slotted wall, the bottom of the slot defining a fulcrum for the lever; a key entering the slot in the wall for confining the lever against the fulcrum; said lever having a portion extending outwardly of the casing; and adjusting means operating upon said portion.

2,987,595. CONTROL APPARATUS. Lorne W. Nelson, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.



1. In a space thermostat, a base adapted to be mounted on a wall, a first temperature responsive means adapted to control a temperature changing apparatus for changing the temperature of the space, said first responsive means being mounted on said base for sensing the space temperature as the air of the space circulates around said responsive means by convection, reflector means attached to said base and forming a cover to house said first responsive means, a second temperature responsive means mounted substantially in a focal point of said reflector so that the heat from said second responsive means can be reflected away from the thermostat to a cold body away from the mentioned wall, a source of power. . . .

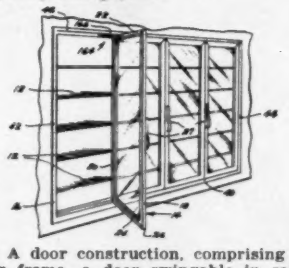
2,987,601. DEFROSTER. Abraham S. Levin, Philadelphia, Pa., assignor to Glenco Refrigeration Co., Philadelphia.



In a refrigerator of the type which includes a mullion, a tube sheet parallel to, and spaced inwardly from, said mullion, spaced evaporator coils carried by, and extending substantially normal to said tube sheet, a defroster for defrosting said coils, said defroster including spaced heater tubes, carried by, and projecting substantially normal to, said mounting, there being openings in said mullion and in said tube sheet registering with the spaces between said evaporator coils and through which said heater tubes are adapted to pass into the spaces between said coils, and means for energizing and de-energizing said heater tubes.

Week of June 13

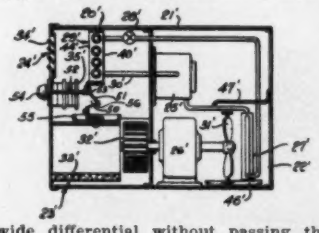
2,987,782. REFRIGERATOR DOOR. Walter J. Kurowski, Chicago, Ill., assignor to Aluminum Refrigerator Door Co., Inc., Chicago, Ill.



1. A door construction, comprising a door frame, a door swingable in said frame, a lower hinge pin projecting upwardly from said door frame, a member on the lower edge of said door and having an opening therein disengageably receiving said hinge pin, said door being movable upwardly to disengage said member from said lower hinge pin. . . .

2,987,894. AUTOMATIC CONTROL OF ROOM TEMPERATURE REGULATING DEVICES. Rodney W. Lancaster, Red Bank, N. J. (500 Arlington Rd., Camp Hill, Pa.)

A method for automatically controlling the temperature of a fluid in an enclosure which comprises circulating the fluid through a thermal exchanger, sensing the temperature of the circulated fluid by single thermal responsive means of wide differential adjacent the exchanger, and controlling the temperature of the thermal exchanger by diverting some of the fluid from the enclosure directly to the single thermal responsive means of



wide differential without passing the fluid through the thermal exchanger.

(To Be Continued)

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

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Air Conditioning & Refrigeration Institute	18
Airserco Mfg. Co.	9
Alco Valve Co.	9
Allen-Bradley Co.	27
Allied Chemical Corp., General Chemical Div.	25
Harry Alter Co., Inc.	31
American Telephone & Telegraph Co.	4
Anderson Chemical Co.	26
Arrow-Hart and Hegeman Electric Co.	24
Bohn Aluminum & Brass Corp.	12
Bundy Tubing Co.	10–11
The Dalton Foundries, Inc.	31
Dunham-Bush, Inc.	32
Edwards Engineering Corp.	25
Frigid Equipment Co.	8
The Garman Co.	31
General Electric	16–17
Halstead & Mitchell Co.	29
Hermetics, Inc.	24
Henry Valve Co.	13
Highside Chemicals Inc.	22
Holsclaw Bros., Inc.	20
Imperial-Eastman Corp.	24
George L. Johnston Co.	28
Lennox Industries Inc.	20–21
McQuay, Inc.	15
Mechanical Industries Prod. Co.	15
Metals & Controls Inc.	22
National Lock Co.	28
Peerless Pump Hydrodynamics Div.	21
Penn Controls, Inc.	5
Phelps Dodge Copper Prod. Corp.	19
Refrigeration Appliances, Inc.	26
Revcor	28
Phil Rich Fan Mfg. Co.	18
Rochester Products Div. of General Motors	2
Stiles-Karlsonite Corp.	17
Southgate Tool & Die Co.	23
Tenney Engineering, Inc.	23
Union Carbide Chemicals Co., Div. of Union Carbide Corp.	8
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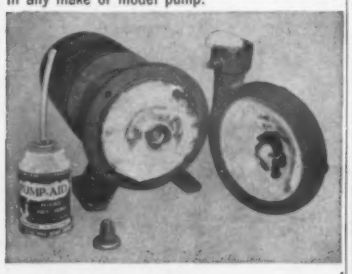
Now is the time to prevent stuck pumps . . . eliminate consuming repairs next spring. After draining pump, simply inject PUMP AID into pump housing through drain hole. Aerosol packaged PUMP AID E-X-P-A-N-D-S to cover all interior surfaces. At start-up time — just throw the switch and your pump is running. PUMP AID is water soluble and washes away. May be used in any make or model pump.



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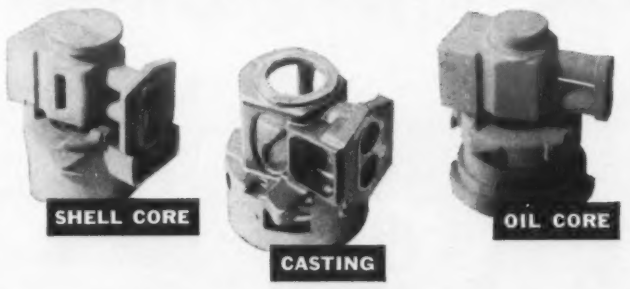

This leading producer of air conditioning and refrigeration compressors and condensing units relies on quality crankcases and shafts made by The Dalton Foundries. The 2 cylinder crankcase shown is typical of improved design and greatly lowered costs.

Substantial cost reductions were obtained by redesigning oil sand core to shell core, eliminating difficult assembly by the molder and improving some finishing operations. Machining problems were reduced and closer tolerances held, further reducing costs in the customer's plant.

Dalton has the facilities to give you improved castings at minimum end cost. Write for brochure . . . and make it a point to see our specialist in compressor castings.

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The most *complete* selection of products *in stock* in the entire industry. Over 10,000 different items.

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FREE PARKING— FAST SERVICE

KELVINATOR "SPACETTE"

"MAGIC MOUNT"

Kelvinator--

(Continued from Page 1, Col. 5)

able with reverse cycle heating as well as cooling."

Two Spacette models "are compactly designed to fit snugly into windows 16 to 40 in. wide, without air leaks or alteration of window. Either model can be installed readily into casement windows by simply removing bottom pane and slipping unit through the frame. Units can be readily moved to other windows or rooms.

"Unique top air flow allows occupants to sit close to unit without drafts. Because both models operate on most normal household circuits, drawing only 7½ amps, they do not require additional wiring. Model RC-141 has a capacity of 4,000 Btuh, while model RC-161 has a capacity of 5,500 Btuh."

Additional Features

Additional features include two-speed fan and two rotating air deflectors. Dimensions: height, 10¾ in.; width, 14½ in.; and depth, 22¾ in.

"Easy installation in just a few minutes is an important user benefit" in the four models that make up the Magic Mount series, Kelvinator said. Special mounting frame fits into window, and room air conditioner is slipped into this Magic Mount. Unit installs flush with inside sill so it does not interfere with draperies or furnishings.

Two-speed master switch turns unit off and on and provides air circulation with or without cooling. Thermostat and ventilation control are other features.

All models are 14 in. high and 25½ in. wide, with two models 18¼ in. deep, and two 19¾ in. deep. Various options include reverse cycle heating, electro-magnetic filter, and 208-volt models. Btuh capacities range from 6,300 to 9,800, according to Kelvinator.

Three basic models make up the Custom Series. These room air conditioners have three-speed fans, ventilation control, and four circular deflectors behind grill.

Operating on 230 volts, the Custom models provide capacities of 12,100, 15,000, or 18,000 Btuh, depending upon model. Optional features include electro-magnetic filters, reverse cycle heating, and 208-volt models. Dimensions are: height, 17¾ in.; width, 26⅜ in.; and depth, 29⅝ in.

Despite their large cooling capacities (22,000 and 27,000 Btuh), the two Giant models are only 27 in. wide, slightly more than Custom models, it was noted. They are 36 in. deep and 22⅜ in. high. One model is available for operation on 208 volts, instead of 230 volts.

Aerovox Names Palamountain

NEW BEDFORD, Mass.—E. E. Bauer, vice president and general manager of Aerovox Corp.'s New Bedford Div., has announced the appointment of David Palamountain as director of quality control.

Palamountain was formerly with Raytheon Mfg. Co. at Newton and Quincy, Mass., where his last position was manager of in-process quality control.

Westinghouse Div. Shows New Lines To Distributors Oct. 19

COLUMBUS, Ohio—A three-day distributor business conference and new line introduction has been scheduled here by the major appliance division of Westinghouse Electric Corp. for Oct. 19-21.

New models of room air conditioners and other products for the 1962 marketing year will be introduced. A sample product introductory meeting of the type distributors will be expected to put on for their respective dealer groups will be part of the first-day session.

On Oct. 20, there will be detailed conferences on sales management in the various product areas as well as outlines of promotion plans for each product. Individual conferences between various distributors and regional and area sales managers and key factory executives have been scheduled for Saturday, Oct. 21.

Distributor training sessions for their own personnel will be completed the following week, with distributor meetings for retailers scheduled to start the week of Oct. 30. All meetings with retailers are scheduled to be completed by Thanksgiving.

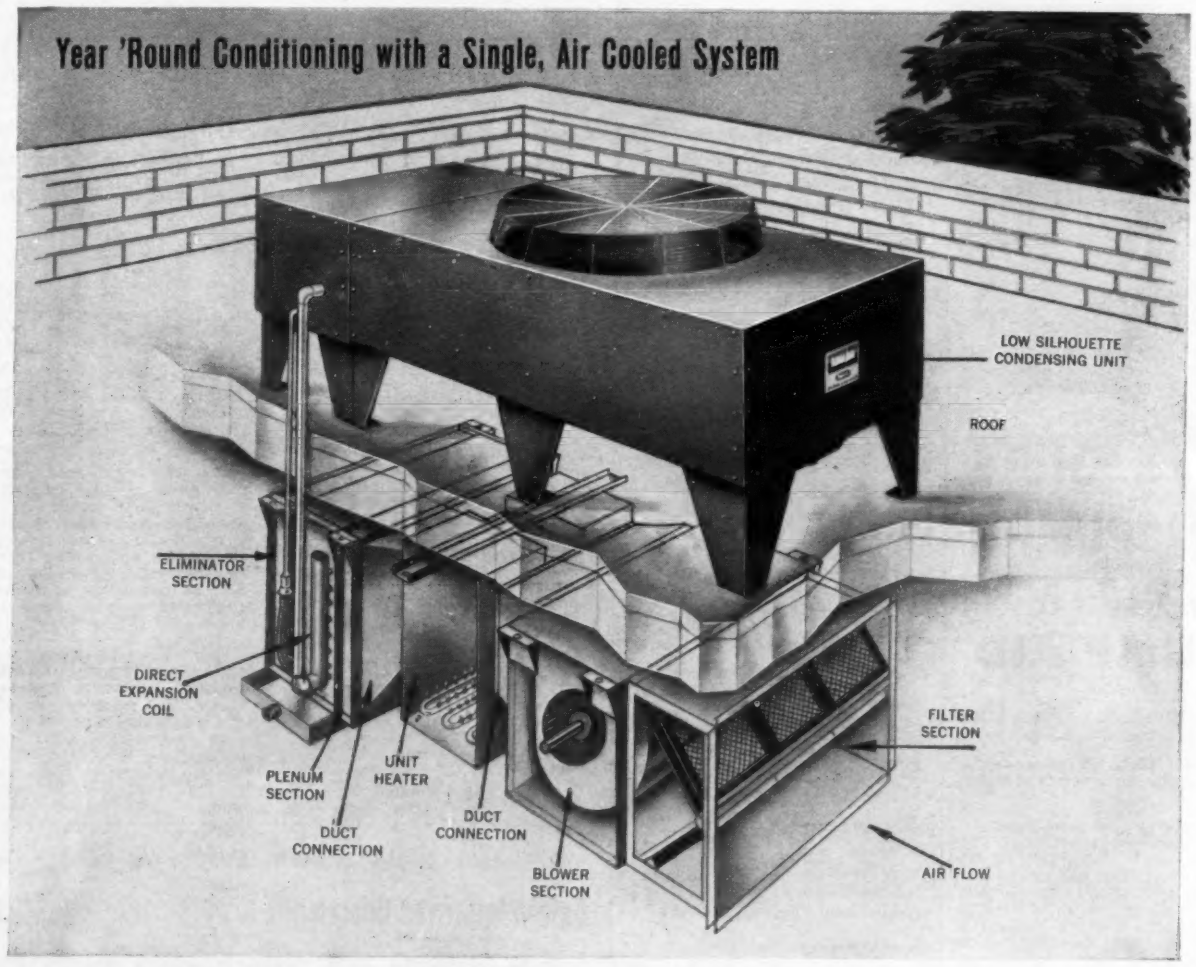
Omaha Silver Shield To Be Licensed Oct. 18

OMAHA, Neb.—Licensing of the first Silver Shield Bureau in Nebraska will take place here on Oct. 18 at a banquet to be held in the Livestock Exchange building.

Glenn C. Cunningham, congressman of Nebraska's Second District, will be the principal speaker and give the keynote address when the Tri County Indoor Comfort Bureau is officially launched. An estimated 400 are expected to witness the ceremonies during which Omaha's mayor will issue a proclamation declaring Oct. 18 to Oct. 25 "Silver Shield Week."

Graduation certificates will be presented to the 61 heating and air conditioning men for successfully passing the rigid examinations which followed 14 weeks of technical training in a classroom. This was necessary to qualify for membership in the bureau.

Officering the new bureau are: Don Siebler, Siebler Heating & Air Conditioning, Inc., president; John Fisher, Nelson Tin & Furnace Co., vice president; Mel Knust, Dean Heating & Air Conditioning Co., co-secretary; Les Johnson, Sig Johnson & Sons, co-secretary.



. . . THE "ALL-SEASONS" SYSTEM BY DUNHAM-BUSH

Both heating and cooling are provided by the sensibly-engineered, economical Dunham-Bush "ALL-SEASONS" System. And the system's flexibility permits its use in a wide range of buildings—shopping centers, medical clinics, bowling alleys and many other single story structures.

Important space savings are made possible in two ways: low side equipment is suspended from the ceiling (conserving floor space); high side components may be installed on the roof or in a room remote from the conditioned area. Through the use of duct work it is possible to condition partitioned areas or separate rooms.

Major components of the system—'HAH' air handler and 'LSCU' condensing unit—are tested, proved Dunham-Bush products . . . in combinations carefully engineered and matched for maximum performance and economical operation.

Features of the system include:

- Packaged components eliminate expensive field installation costs.
- Central control station provides for remote operation.
- Pilot lights for visual check on performance.
- A.G.A. approved gas fired, warm air heating system. No gas lines in the conditioned area.
- Final piping connections can be made outside the conditioned area.

"ALL-SEASONS" systems are available in 16 different matched combinations. Range: 15 to 30 Tons cooling; 175,000 to 450,000 BTU/hr. heating.

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